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CLINICAL OBSERVATIONS

ON

PSEUDO-MORBID APPEARANCES;

DELIVERED AT CHARING-CROSS HOSPITAL,

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On a former occasion, when speaking of ecchymosis from blows and sprains, and other similar hurts, I spoke of the red and the blue ecchymoses as being those which we are in the habit of seeing immediately, or, at least, very soon, after an injury; in some severe instances a few minutes will suffice. You had opportunities of seeing several which exemplified this; and we further saw that the yellow colour in all these cases was a secondary result. Since that time other cases have fallen under our observation, and we will briefly notice their progress.

A boy, about two years of age, of light complexion, with light hair and eyes, was knocked down by a cab; he received a severe scalp wound, and either a sprain or a bruise on the foot.

July 25, six, P.M. Immediately after the accident he was admitted into the hospital; eighteen hours after there was an extensive indigo blue on the upper part of the foot.

26, twenty hours after. It was still the same colour.

27, forty hours after. The blue had begun to change to green at the margins.

Aug. 1, seven days from the accident. The blue has been gradually becoming more green; there is not, up to the present time, a yellow appearance.

July 30. A woman, aged 40, of dark complexion, had received from her husband, who was in liquor, several bruises; among others, severe blows on the face. She was admitted at ten, P.M., immediately after the occurrence.

31, three, P.M., seventeen hours after the injury. The upper and under eyelids of both eyes had each a deep ecchymosis, rather of the purple than the indigo blue; they were quite defined; the lower lids œdematous.

Aug. 1, two, P.M., forty hours after. Appearances remained the same. She has other marks from blows, which follow the same course.

July 30. A youth, about 16 years of age, was helping to unload a heavily laden cart; the horse had been removed, and the greater weight being behind, the load tilted (as it is called) backward; in endeavouring to prevent this he was forced down, but the cart caught his knees in such a way that his legs remained upright, like two perpendicular props, and for some time bore the whole weight, which was very great; there was no fracture or dislocation.

At four o'clock, A.M., immediately after the accident, he was brought to the hospital, complaining chiefly of pain in the ankles.

Three, P.M., eleven hours after. The right ankle was red, and slightly swollen.

31, four, P.M., thirty-six hours after. The right ankle was still slightly swollen, and had a very faint livid hue.

Aug. 1, four, P.M., forty hours after. The discolouration had become rather darker, and inclined more to parchment colour.

W. Inwood, aged 30, fair complexion, was working upon a scaffold, on which there was a great weight of bricks; he fell with the scaffold and the bricks, from a height of sixty feet, to the ground.

July 30, at nine, A.M., immediately after the accident, he was brought to the hospital; had bruises and slight abrasions on the face; a severe sprain of the ankle, and a fractured arm.

At three, P.M., six hours after the accident, had swelling of the instep of the foot that had been hurt, with diffused indigo-blue ecchymosis over nearly the whole of its surface.

31, three, P.M., thirty hours after the hurt. The blue colour remained, mingled with faint shade of green.

Aug. 1, one, P.M., fifty-two hours after. The green had begun to change to yellow.

July 30. John Challen, aged 30, of dark complexion, was working with Inwood, and also fell to the ground, with the scaf-

fold and the bricks, from a height of sixty feet.

At nine, A.M., immediately after the accident, he was brought to the hospital. He had severe scalp wounds, and a compound fracture of the leg; complained of severe pain in his back, and at the scrobiculus cordis; and had several severe bruises. One of these was on the arm, and three on the forearm, all so severe that there was abrasion and swelling in each.

Three, P.M., six hours after the accident, that on the arm presented a faint indigo-blue; one on the outside of the forearm, near the elbow; one on the outside of the forearm, near the wrist; and one on the inside of the forearm; all presented a similar appearance.

31, three, P.M., thirty hours after the accident. The ecchymosis on the arm still blue; that on the forearm, nearest the elbow, a deeper blue than before. It is abundantly dotted with a still deeper blue beneath the cuticle; there is a faint yellow diffusing itself from this all around, especially towards the ecchymosis near the wrist; the yellowness is in parts which had not been blue. The ecchymosis near the wrist as on the previous day; that on the inside of the arm more blue, and has also the dotted appearance.

Aug. 1, three, P.M., fifty-four hours after the accident. That on the arm retains the indigo shade of blue; that on the arm, nearest the elbow, is giving place in some parts to a purplish hue; in others to greenish-yellow; that on the forearm, nearest the elbow, is growing fainter; the shade the same; that near the wrist is growing fainter; the hue the same as at the report thirty hours after; that on the inside of the forearm is changing from blue to purple, the margin becoming of a greenish-yellow.

There was, also, a severe blow, with abrasion, on the inner condyle of the other arm. He was bled from this arm, and at the time there was only a faint discolouration; this subsequently became intense, but its form was exactly defined by the ligature, put on in the usual way. The deep, intense mulberry-purple ceased abruptly at the parts encircled by the ligature; under the ligature, and for some distance beyond, there was a faint shade of yellow; this was not noticed until the ligature (not being longer necessary) was removed; the ecchymosis was from the bruise, not from the orifice made in bleeding.

There is also another somewhat similar case, of which I will remind you. The man who fell on the edge of a stair, and fractured the patella, of whom I spoke on a former occasion, had one bandage applied above the knee and another below it; a tape was passed from one to the other, on the outside of the knee, to prevent their receding from each other. From the violence of the blow on the knee an intense blue ecchymosis ensued on the outside of the knee; it was bounded above by the one bandage and below by the other; the blue did not spread beyond either, and it was divided perpendicularly by the pressure of the tape, which passed between the two; the skin under the tape retained its natural colour. It is desirable that you should recollect the effect of these bandages, particularly in connection with the subject of ecchymosis in the event of death by hanging. We perceive that in all these instances red and blue, with their intermediate shades, were the primary colours, and that yellow, with its occasional shades of green, were secondary appearances; and it is worthy of recollection, that in Challen's case four were so severe that there was both abrasion and swelling.

To return to the subject of ecchymosis by ligature.

In determining whether death by hanging has been sudden or not, we shall be assisted by taking into consideration the immediate cause of death in persons who die by that process. It has been ascribed by different physiologists to very different causes; for example,—

To interrupted circulation through the blood-vessels of the neck, causing apoplexy;

To interrupted passage of air to and from the lungs, causing asphyxia;

To the combined influence of both apoplexy and asphyxia;

To pressure on the nerves of the par vagum; and

To laceration of the ligaments of the neck, or fracture of the cervical vertebræ.

The circumstances which have been regarded as proofs of death by apoplexy are,

The livid hue of the face;

The actual pressure which is in most cases inevitable on the vessels going to and from the head; and

The frequent existence of apoplectic congestions and extravasations within the cranium.

The livid hue of the face, however, cannot be properly regarded as a strong indication of apoplexy; it may be occasioned by pressure on the external jugular veins alone, which receive blood from the vessels external to the cranium. The external veins, indeed, may be greatly distended while there is but little change in those within the cranium. Dr. Rhinelander records the case of a person executed, in whom "the superficial veins were greatly distended with dark fluid blood, while the carotids and internal jugulars were empty;" and Dr. Kellie, of Leith, mentions three examples of persons executed in whom "the veins external to the cranium were fully distended, while but little change was seen internally." The livid hue of the face

occurs in many kinds of death, especially in death from asphyxia, independently of hanging; the face is sometimes of the natural colour, and it is occasionally even whiter than usual in persons who have certainly died of apoplexy; and the lividity is not always present even in persons who have died by hanging. In the course of a judicial inquiry relating to a young woman who had been found dead under suspicious circumstances, Dr. Channing stated that he had seen fourteen cases of people hung, and in most of these the countenance was pale. Dr. Dunn, of Newport, confirmed this from the observation of four cases.

With respect to interrupted circulation, admitting that the cord does arrest the transit of blood through the arteries and veins of the neck, such interruption is not followed by immediate death in analogous cases, as experiments show. We may, moreover, take this view of the question of pressure on the vessels of the neck, that the pressure to be injurious must have one or more of three effects:—It must either render both the artery and the vein impervious, or it must close the artery and leave the vein pervious, or close the vein and leave the artery pervious. Should the artery and the vein both be rendered impervious, then these vessels obviously can neither increase nor decrease the quantity of blood within the cranium; and although the vertebral arteries, from their protected situation, should still carry blood to the brain the vertebral veins, being equally protected (for they also pass through the foramina of the transverse processes of the cervical vertebræ), would continue to return it, and so preserve the equilibrium in that particular. Should the carotid artery be closed and the internal jugular vein remain pervious, then anæmia rather than hyperæmia would be the result; but should the artery remain pervious and the vein impervious then, certainly, an accumulation of blood within the cranium might take place, and apoplexy be a probable result.

Dr. Fleichman remarks that "when the cord is so placed round the neck as to compress, in preference, the large vessels, and particularly the venous ones, and at the same time prevent the passage of the blood below the constriction, apoplexy may follow." When we recollect, however, the situation of the carotid artery and its corresponding vein,—when we remember that they are in juxta-position and inclosed in the same sheath until they have reached the deep and protected situation in the neck where (within a finger's breadth of the cranium) they divide to pass through their canals, it certainly appears to be far from obvious that a cord round the neck should compress, in preference, the large vessels, and *particularly the venous ones*; yet, in the event of such occurrence, it would be a good presumptive explanation of the occurrence of apoplexy.

With respect to these vessels it is more probable that they should both escape pressure, especially if the knot should be over them, for, as we shall see, that part is generally less affected by the ligature than others, owing to the drawing upward of the cord and the falling away of the head from that particular point. It is possible that the balance of circulation may be destroyed by the obliteration of two vessels on one side of the neck and one only on the other, but this is a complication which we need not follow out.

We find numerous instances of persons who have been suspended so long that both respiration and circulation had either ceased or become so faint as to be imperceptible, until, indeed, the cause or causes producing death had come into full action, yet such persons, upon resuscitation, have not presented the usual phenomena attendant upon apoplexy, as paralysis, nor the less formidable consequences. It is true that in describing their sensations they stated that they felt as if going into a profound sleep, and Foderé states "that there were individuals living at Marseilles who, during the French revolution, were hung, and their lives saved in the night-time, and who for a long time were affected with a ringing in the ears and deafness;" these, however, appear to have been the nearest approaches to apoplexy which their conditions indicated.

The cases of a man and a woman who survived hanging are recorded by Wepper; the woman did not recollect anything,—the man stated that on the application of the cord he felt no pain, but seemed to sink into a profound sleep. A case is recorded by Morgagni of a person who had survived hanging, and who said that the first sensation was flashes of fire before his eyes, and that then he sunk into a profound sleep. A case is recorded, and upon good authority, however incredible it may appear, of a gentleman who, to ascertain whether persons who were hung experienced any pain, actually performed the experiment on himself, and was saved from a tragical end only by the accidental arrival of a friend, who cut him down. This is, perhaps, the most whimsical waste of scientific zeal that was ever put on record; it was seeking to know the result of an experiment the very nature of which experiment made it impossible that the result could be known.

In relation to the question of apoplexy, as the cause of death, Beck says:—"In fatal cases, as we shall presently show, the brain exhibits all the ordinary appearances of apoplexy." It is indubitable that many, perhaps the majority of cases do so, but it is equally certain that many do not; and it appears to me that the passage requires a corresponding qualification. We need not

travel out of the author's admirable work, however, for examples of the frequency of death by hanging, without apoplexy; and I would direct your attention especially to the statements that, "In those dead from apoplexy the brain will be gorged with blood, its vessels distended, and sometimes there will be suffocation." * * * "When an individual expires from suffocation cerebral congestions will be wanting, but the lungs will be engorged and filled with air." * * * "Of the cases examined by Remer nine appeared to have died from apoplexy and six from suffocation." On the subject of asphyxia we have greater uniformity of proof. That interruption to breathing is the most frequent, and indeed the general, cause, appears from experiments of the most conclusive character, which, indeed, while they confirm the doctrine that death is inevitable under interruption of the respiration, demonstrate with equal certainty that it is not inevitable under interruption to the circulation in the large vessels of the neck.

In numerous instances, and under a variety of circumstances (but all tending to the same result), experiments have been performed. Animals suspended by the neck, for example, with an orifice in the trachea, between the ligature and the lungs; and they have been cut down, after an hour's suspension, not dead, the respiration and circulation having proceeded during the experiment. The relative position of the ligature and the orifice have been reversed, and death immediately ensued. Such experiments you will find detailed in numerous works on physiology, forensic medicine, and others, each instance affording the double proof that interruption to the respiration does kill, and that interruption to the circulation of the blood does not.

A dog was made the subject of this experiment; after the trachea had been opened a slip-knot was passed round the neck, above the wound. The animal, though hanged, continued to live and respire; the air was admitted and expelled through the opening in the trachea; the constriction was made below the orifice, and the animal died. In another instance a dog was hanged; as soon as he became insensible the trachea was opened below the ligature, and sensibility was restored.

According to Dr. Fleichman death ensues from suffocation, more especially when "the cord is placed between the larynx and os hyoides," as the "pressure operates powerfully on the respiratory passages without so strikingly affecting the blood-vessels;" the distinction, however, appears to be too nice for practical purposes and safe physiological deductions; that the air-passage would be closed, and death ensue, there appears to be no doubt, but it does appear to be doubtful how far we may venture to reason upon the particular degree of pressure to which the blood-vessels would be subjected under such circumstances. Sudden death may also be produced by rupture of the ligaments of the neck and by luxation or fracture of the cervical vertebræ.

It has been stated that several executioners in France performed their office in such a manner as to save the lives of some, while others were irrecoverably killed, and, upon inquiry, they *professed* to have the power of causing laceration of the trachea, and a luxation of the first cervical vertebra from the second, "by placing the knot of the cord under the neck, and then giving a rotatory motion to the body at the moment when the ladder was taken away from under its feet." I must confess that I am extremely sceptical on this point, and should be disposed to consider that in those cases where they "saved the lives of the criminals," it was rather by an awkwardness than by an adroitness in the mode of execution.

On a previous occasion I have stated that in this country our executions are not always so complete as humanity demands that they should be, and attributed the defect to some movement of the unhappy sufferer while still on the platform, which altered the adjustment of the cord; a cause still more likely to have this effect is the removal of a ladder from under the feet, and giving a "rotatory motion" to the body at the moment when it is cast off. Luxations and fractures of the vertebræ, and laceration of the spinal chord, are necessarily more likely to occur in proportion as the body is heavy and the fall considerable; especially in those countries where the executioner, at the moment he casts off the sufferer from the ladder, springs upon his shoulders, and throws upon his neck the additional weight of his own body.

That we may occasionally meet with injury to the cervical vertebræ there is no doubt; and in such event, in determining the influence that any given lesion may have had on the suddenness with which life has been extinguished, we must regard especially two considerations, first, the exact situation of the lesion, and next the effect of such lesion in accidents and injuries under ordinary circumstances. It would be irrelevant to our present subject to digress into a discussion of these, but there is a broad general distinction which it may be desirable to recal to your recollection, in order that you may perceive the immediate bearing it may have on an investigation such as we are contemplating.

The distinction (suggested by Sir Astley Cooper, in his work on dislocations) is, that fractures and displacement of the cervical vertebræ should be divided into two classes,—First, those which occur above the third cervical vertebræ; secondly, those which occur below it. In the first, if the accident

is accompanied by the usual displacement, death is the almost immediate result, the phrenic nerves, having their origin in the third and fourth cervical pairs; in the second it may be at a more or less distant period. It is scarcely necessary to say that this injury forms a rare exception to the general rule.

I have enumerated amongst the immediate causes to which the death is assigned, pressure on the nerves, but I need not do more than remind you of the experiment performed on a rabbit, of which I spoke on a previous occasion.

Upon considering, then, the degree of corroborative evidence of death having been sudden, afforded by signs of either of the phenomena to which the fatal result is attributed by physiologists, it appears that we may regard the pressure on the nerves as faintly corroborative only; the presence of apoplectic effusion, or of injury of the vertebral column, above the fourth cervical vertebra, as *strongly corroborative;* and signs of complete and sudden interruption to respiration as proof amounting to absolute certainty.

I have on a former occasion observed, that in judging between morbid appearances on the neck, from fatal suspension, and pseudo-morbid appearances produced by ligature after death, the distinction will be somewhat embarrassing, and I have spoken of the peculiarities which tend to make it so.

In observing the progress of ecchymosis, produced even under circumstances the most favourable to its production, for example, by a blow inflicted on a person who is neither suffering from general nor from local deficiency of vital action, either at the time when the injury is inflicted, or subsequently, we have seen that the ecchymosis is not the result of a few seconds; that it is the consequence of a succession of events; that the first is the pouring out of blood from vessels still under the influence of the heart's action and of the capillaries; and the second, diffusion of that blood into the surrounding tissues.

In death by hanging, where the fatal event occurs with the accustomed degree of suddenness, the action of the heart and the capillaries ceasing, the blood is no longer forced out of the vessels, and, consequently, ceases to be *propelled* into the adjacent parts; hence we perceive how widely dissimilar the circumstances are, under which full and complete ecchymosis from a blow is formed, from those under which the incomplete ecchymosis, from the ligature in hanging, is formed; and we further see how similar the circumstances are under which the morbid appearances from hanging, and those from ligature after death, occur.

There is certainly a period of time, namely, that between the tension of the ligature and the cessation of vital action, during which the condition of the body suspended before death, and of that suspended immediately after, are different; but the period of time is so extremely brief, that, although the occurrence of vital phenomena may not be wholly prevented, they are so suddenly arrested (within a period of time, indeed, obviously less than is sufficient for the formation of ecchymosis), and the living body so soon becomes a dead body, that the respective visible results, although not exactly similar, cannot fail to bear an extremely close resemblance to each other.

There are certain appearances, apart from those connected with the situation of the cord, which we must not disregard; some of these are of but little weight individually, while others are important. I will first mention briefly those to which much weight does not attach. The tongue, in persons who have been hung, is occasionally thrust out and bitten, and has, therefore, been considered as a proof of death by suspension; but we must recollect that this is not truly a sign of such death; that in those instances where it does happen it is the result of accident, and is determined chiefly by the situation of the ligature; that it may occur in strangling by hand, without suspension; that it occurs in epilepsy, and under many other circumstances; and, finally, that it may be artfully done by a designing person after death, in order to produce a false impression.

Projection and suffusion of the eyes are enumerated as signs of death by hanging, but so are they also enumerated as signs of death by asphyxia, and certainly are seen under circumstances so various as not to warrant any confidence in their testimony. The same remark applies to lividity of the chest. The condition of some other parts have been considered to afford evidence of hanging, but as they, too, are found under other circumstances of violent death, I will not detain you by dwelling upon them; they, nevertheless, will require your attention; and in the pursuit of your studies in relation to the effects of certain poisons, more especially arsenic, and of certain injuries, more especially of some parts of the vertebral column, and of the nerves implicated in such injuries, you have acquired a knowledge of the facts which apply to the subject.

We will now enter into a comparison of some of the appearances which may present themselves in the course of an investigation; and I scarcely need remind you that in many instances the comparison will necessarily fail to present strong contrasts; neither should we be justified in imagining those contrasts to be greater than they really are; by so doing we may delude ourselves into a belief that we possess the certain means of discriminating between true morbid appearances and pseudo-morbid appear-

ances; but our especial object is to guard against that delusion; and our especial duty is not to act upon the presumption that we possess means of discrimination more precise than we really do, and not to place more reliance in any individual sign of distinction than it is fully, fairly, and strictly entitled to. Orfila has stated, on the faith of several experiments, that he doubts whether in answering the question of suspension before or after death we can go beyond probability.

In making a comparison between discolourations produced by the ligature in hanging, and one caused by a ligature applied after death, we find that—

In Morbid Discolourations produced by the Ligature in Death by Hanging.	*In Pseudo-morbid Discolourations produced by Ligature from Hanging after Death.*
The discolouration *may be* blue or purplish, although it is generally either of a dull lead colour, or a dirty yellow-brown.	The blue hue of ecchymosis is scarcely possible, the general colour is a dirty yellow-brown.
The discolouration, if death has been slow, *may* extend beyond the mark of the ligature, but generally it does not.	The discolouration does not extend beyond the mark of the ligature.
The degree of discolouration will not depend so much upon the weight of the body, the depth of the fall, or the time during which it may have been suspended, as upon suddenness of death.	The degree of discolouration will chiefly depend on the greater weight of the body, and the depth of fall, and the time during which the body has remained suspended.
There may be no discolouration.	There may be no discolouration.

In making a comparison between the peculiarities of different depressions by the ligature in hanging, and that caused by a ligature applied after death, we find that—

In the event of Death by Hanging.	*In the event of the Ligature being applied after Death.*
Suspension for a period sufficiently long to cause death, is most generally productive of depression.	Suspension may be continued to a period of time much longer than would be sufficient to cause death, without producing depression.
A body cut down immediately may be without depression.	A body cut down immediately or soon after suspension, would *very probably* be without depression.
Depression is most likely to occur in fat persons, more especially if the suspension has been continued until the adipose substance of the neck has become cold, and has taken the form of the ligature.	The depression would be less deep or less permanent in proportion as the period of applying the ligature, even in fat persons, was more distant from the time of death.
The depression does not become spontaneously obliterated within any moderate space of time.	The depression is very apt to become spontaneously obliterated within a moderate time.
The depression generally is not removed, and is sometimes scarcely diminished, by rubbing with the hand.	The depression frequently may be removed, and is generally diminished, by rubbing with the hand.

Some assistance will be gained by comparing the situation and the direction of the mark. If death has taken place from hanging the mark will be near the upper part of the neck; it will be in an inclined or oblique direction, and the mark of the knot will be at the highest part.

If the ligature has been put on the body, either during life to strangle, or after death, to produce the appearance of its having been suspended, there is a great probability that the mark would not be at the upper part of the neck; that it would not be inclined or oblique in its direction, and that the mark of the knot would be either on a level with the mark encircling the neck, or that it would be even below it.

Dr. Fleichman, in explaining, according to his views, the particular situation of the cord, which at one time may produce death by asphyxia, in another by apoplexy, and in another by a combination of these, states that "the mixed state, or death from a combination of suffocation and apoplexy, probably ensues when the cord is placed below the larynx," and says its direction must necessarily be horizontal, and it will interrupt the passage of air, as well as compress the blood-vessels. The particular part of this passage to which I wish to direct your attention, is that which relates to the horizontal direction of the cord.

I have, in reference to the subject of discrimination between the mark of a cord on a person who has been suspended, and one who has not, stated that the direction of the cord in the one case *will be* indirect or oblique, that in the other it may be direct;

and I do not consider that we may safely adopt the opinion that the cord, in a person who has died by hanging, can be horizontal, without further observation and confirmation than it has yet received.

In public executions the rope is so adjusted that the knot is on one side, near the mastoid process, behind the ear; at this part the cord is necessarily drawn up, and gives an inclined or oblique direction to the mark, so far as the mark continues; but at this point there is frequently no mark, as the head, by falling forward or to one side, draws the integument of the neck away from that close contact with the rope which exists at other parts. In homicidal and suicidal hanging there would be, at some part, although probably not at the same, a similar drawing up of the knot; the head would incline forward, or to one side, and a space would be left not embraced by the cord so closely as the other parts. Dr. Monro, who speaks from frequent personal examination of the necks of persons killed by hanging says, "that the mark upon the skin ends on each side in a narrow point below the ear, and does not extend across the back part of the neck." This absence of mark is particularly likely to occur where the whole weight has not been on the cord, and the body has leaned forward,—some curious examples of which have occurred. In any case there may be abrasions of the cuticle, and, as a general rule, in case of abrasions by ligature, whether produced before or after death, they are more likely to be discoloured, and to retain the discolouration, than parts in which the cuticle remains entire.

We perceive in these comparisons many points of resemblance, and but few in which the differences are strongly characterised; there are certain general appearances, however, from which inferences of considerable importance may be drawn: discolourations, for example, from hyperæmia, the effect of gravitation.

Should the body have hung sufficiently long for the results of gravitation to have become visible, and should it be examined immediately, or at least within a short period from its being cut down, the hyperæmia will be found in parts indicating that the general position of the body was erect when the discolourations took place.

Should the lividity above the ligature not be uniform, then it will be found to be greatest at the lowest parts of the face, and on that side to which the head had inclined, and which may be called the under side. Dr. Beck states that sometimes one side of the face is more livid than the other, and Dr. Kellie ascribes this to the position of the cord. He considers that as the executioner generally adjusts it on one side of the neck by the weight of the body, it slips upwards on that side towards the mastoid process, and that there is consequently a space corresponding to the rising of the noose, which is not embraced by the cord, and where the veins are subjected to little pressure. You have had an opportunity of seeing, within the last few days, an instance of extreme hyperæmia in one side of the face, the consequence of my having placed the head for some time in such a position that it was rather lower than the other; the ear and other parts on the upper side were quite white, the parts corresponding on the lower side quite livid; although something may, perhaps, in the cases alluded to by Dr. Kellie, depend upon the position of the cord over the vein, I am rather disposed to consider that gravitation alone would fully account for the greater lividity of the one side.

Above the ligature the part nearest to it will be the darkest; below the ligature, the parts nearest to it will be the palest. In the superior and inferior extremities the hyperæmia will be more conspicuous than in the body, and of these, in the most depending parts; it will also be diffused equally all *around* them, and will not be accumulated in the back part of the thigh, and in the calves of the legs, nor in those parts of the arms which, had the body been recumbent, would have been the lowest.

Should a body which has not been bereft of life by hanging, have lain some time (and which time need not be long), and then be suspended, in order to produce a wrong impression, early examination would afford an opportunity of discovering certain anomalies, and of detecting the fraud. It is necessary, however, that the examination should be made before the body has been suspended sufficiently long for new results to have taken place. A body which has lain long before it is suspended will have, for some time after suspension, hyperæmia in parts which were lowest while the position was recumbent; and hence a *strong* indication would be afforded that the suspension had taken place after death. Should the body then be allowed to remain in the erect position, and should the hyperæmia leave the back and the loins, and descend into the extremities, and diffuse itself around these, instead of being confined to those parts which *were* the lowest, then the evidence would be still more convincing; and, finally, should restoring the body to the recumbent position bring back the hyperæmia to the parts it originally occupied, the circumstances would afford corroboration extremely strong, if not conclusive, of the suspension having taken place after death.

We must, on the other hand, not forget that a body actually deprived of life by hanging, would, even after it has remained suspended sufficiently long for hyperæmia to have taken place in the depending parts, be subject to transposition of the discolours-

tion, upon its being placed in a position to favour such change.

It is obvious, however, that in any case the examination, in order to be substantially useful, should be made *early*, and this may be cited as one striking example in which evidence the most important to the ends of justice may be lost, either from neglecting to consult persons able to investigate the subject with all the advantages which medical science can supply, or from deferring to consult them until the appearances from which conclusions may have been drawn, have become either blended with others, or totally obliterated in the process of decomposition.

THE CIRCULATING SYSTEM.

[We have been favoured by a friend with the following analysis of a valuable work, translated from the manuscript of its author, Professor Charles Henry Schultz, M.D., of Berlin.—Ed. L.]

I. I have proved that in the living blood are found *living* constituent particles, or rather *organic elements*, quite distinct from the chemical elements into which the blood has hitherto been separated, and which were considered as the only constituent parts. I have likewise demonstrated the true relations of the organic elements with the chemical elements of the blood.

II. I have proved that the organic elements, that is to say, the vesicles of the blood, which had been called the globules, are not, as has hitherto been supposed, permanent and motionless, but are in a continual state of evolution and regeneration, whether in the embryo or in digestion, and that afterwards they are dissolved and rejected from the body by the secretions, in proportion as new vesicles arise. Thus the vesicles of any one animal are not equal amongst themselves, but they assume as many forms and conditions as there are degrees of development. I believe I have been the first to give a history of the evolution of the blood.

III. By this means we are enabled to understand the true organisation of the so-called globules of blood, and of what I call the plasma, as well as their destination and use, and their pathological alterations.

The following is a brief account of the results contained in my work upon the circulation:—

I. *Exposition of the Organic Elements of the Blood.*

1. There are but two organic elements in the living blood, viz., the plasma and the vesicles of blood. The serum is not found in the living blood, but forms, as a chemical product, by coagulation after death. The same in regard to the fibrine, which likewise does not exist in living blood, but is a plastic product of the living plasma, which dies by coagulation. Nevertheless, all physiologists, from Leeuwenhoeck and Haller to the present day, have supposed that the living blood contained serum, in which the globules of blood floated. There was only this difference of opinion, that Berzelius had admitted that the serum contained, in chemical solution, a portion of fibrine; and Professor Müller had given this chemical solution the name of *liquor sanguinis*; but there exists neither pure serum nor this chemical solution in the blood of the living body; for if we separate, as stated above, the vesicles of blood from the fluid in which they swim, we shall find that this colourless liquid will coagulate, or rather congeal, by itself, which congelation does not take place in the true serum; the serum is formed much later after the death of this liquid. By the coagulation of this liquid the colourless fibrine is formed, which has an organic texture, a texture never found in a solid separated from a chemical solution. Moreover, this formation of fibrine does not take place at all times, and under all circumstances, but only whilst the blood is still living. The fibrine will never separate from the blood which was already dead, in the body itself, as in the case of persons who have died by apoplexy, by narcotic poisons, or struck by lightning. It is also possible to prevent the formation of fibrine by adding to the living blood salts, which do not affect the fibrine when once formed. Thus the colourless liquid of the blood is neither pure serum, nor serum with any kind of chemical solution whatsoever, but an organic liquid, which forms, by its plastic force, fibrine, and of which the serum is a chemical product after death. It is on this account that I have called the living liquid the *plasma*; this latter is the true nutritive and plastic portion of the blood, from which all the organs of the body are formed and nourished.

2. The plasma may be separated from the vesicles of living blood by different modes. 1. If we add culinary salt, or some other neutral salt, to fresh blood, the plasma remains liquid for some time, so that in the state of repose the vesicles collapse, and the plasma becomes clear. This method is, however, imperfect, because the salt alters the plasma and the vesicles. 2. If a cylindrical glass be filled with blood flowing from a vein or an artery, after having corked the glass, to prevent the contact of the atmospheric air with the blood, we shall see, after it has been at rest a few moments in the glass, a perfect subsidence of the red particles, whilst the plasma floats colourless. The same takes place in blood received into portions of intestine, or blood-

vessels, which are tied at each end, and suspended perpendicularly. Other experiments are described in my system of the circulation, where I have, at the same time, pointed out the modes of preserving the liquidity of the blood for the purpose of transfusion.

II. *The Vesicles.*

3. The vesicles of the blood in the perfect state are composed of a membranous covering, originally without colour, the interior of which is filled with an aeriform liquid, in the midst of which is found the nucleus. The colour of the vesicles depends upon the colouring matter being contained in the parietes of the vesicular membrane. It had hitherto been thought that the central nuclei of the globules of blood were only surrounded directly by a layer of colouring matter, without a proper membrane, and that water might dissolve this entire membrane, leaving the nuclei perfectly bare. But this is an error; *for*, according to my experiments, water extracts only the colouring matter, and the vesicular membrane remains entirely colourless, and it is owing only to the vitreous pellucidity of this membrane that it has not been recognised. To perform the experiment with perfect success, the vesicles of fresh blood must be dissipated in salt water, or in serum, before water is added; afterwards double or triple quantities of water must be added successively (more to the blood of the mammalia, and less to that of reptiles), until the membranes are completely deprived of their colour, and are become almost imperceptible. In this state I discovered a mode of making the vesicular membranes reappear suddenly, by adding iodine, or the tincture of iodine. By means of iodine the membranes immediately assume a very remarkable brown colour, so that we recognise all the details of their structure.

4. In this experiment we soon remark that the same quantity of water acts in a very different manner upon different vesicles; some losing their colour soon in a small quantity of water, whilst others are longer in losing it, even in a large quantity. This difference depends upon the quantity of colouring matter contained in the different vesicles; those which contain the most require a larger quantity of water to extract it; hence the phenomenon that the same quantity of water will completely deprive some of the vesicles of their colour, others only partially, and others, again, scarcely at all.

5. The vesicles of fishes contain very little colouring matter, and lose their colour by the addition of the least quantity of water. The vesicles of reptiles contain more; those of birds and of the mammalia, including man, the most, and they require the largest quantity of water to deprive them of it.

6. The vesicles of the vertebrata, including man, whilst their membranes are provided with colouring matter, are flattened. As soon as this matter is extracted they swell out, and become globular; then the contracted nuclei, previously compressed between the parietes of the membrane, move and roll about with the vesicles. Thus we see that the nucleus does not fill the interior of the vesicle, but that between the membranous envelop and the nucleus there exists a large empty space; this space is, however, not absolutely empty, for if it were, the parietes of the swollen membranes would be compressed, but filled with an elastic aeriform fluid which distends the vesicles.

7. The membranes of the vesicles have enlarged and thick parietes whilst they contain the colouring matter; only the parts contiguous to the nuclei are thinner, and therefore more pellucid. After the extraction of the colour the whole membrane appears extremely attenuated and perfectly transparent.

8. The vesicular membrane is very elastic. If the vesicles, deprived of their colour, be compressed, they extend in breadth, and resume their primitive form the moment the pressure is withdrawn.

9. Moreover, the membranes possess, a very remarkable organic contractility, which acts on the application of certain irritants; among these irritants are the greater part of the neutral salts, the oxygen of the atmosphere, spirit of wine, the coldness of water, &c. If a little common salt be added to the colourless vesicles, distended by means of water, they contract very sensibly, and partially resume their flattened form. The same thing is observable on adding spirit of wine, or on leaving the vesicles for some time in cold spring water. The same contractility is seen also in the vesicles when in a state of perfect integrity, chiefly on the application of salts; but this contraction is relatively less perceptible, because the entire vesicles are already, in a certain degree, contracted.

10. The vesicles of the same animal, not being permanent and immoveable parts, some being found in the period of youth and development, others in the perfect state, and others in the period of old age and decrease, do not all possess the same contractile power. The young and newly-developed vesicles, whether in the embryo or in the trunks of lymphatic vessels of adult animals, are very irritable, and the most capable of contractility. In the adult and old vesicles the contractility diminishes, and is at length quite lost in those which are on the point of being secreted.

11. Organic contractility imparts to the living vesicles a turgescence and tonicity, which are lost by death, after which they exist in a state of perfect relaxation, which causes them to be wrinkled, and the water

cannot reproduce the distention after the extraction of the colour.

12. The membranes contracted by irritation retain tenaciously their colour, so that it cannot be extracted by the ordinary method. Hence the hitherto inexplicable phenomenon that salt water and the serum of blood do not dissolve the colour of entire vesicles. From the time of Hewson till now it had been thought that the colouring matter was not soluble in salt water; but this is an error; for the matter, once extracted from the vesicles, is easily soluble in salt water, as I have demonstrated; and even salt water dissolves and extracts the colour of old vesicles of the vena porta, and of blood long dead, the vesicles of which have lost their contractility. Thus, it is only the strong contraction of the vesicular membranes, produced by the exciting effect of the salt, which prevents the solution of the colour of the entire vesicles, and by diluting the saline solution with an additional portion of water, as the irritation of the contraction diminishes, the colour of living vesicles is dissolved. In the living body the vesicles are always excited by the salt of plasma, and kept in a state of contraction, which preserves them from solution.

13. By the powerful contraction of the vesicular membranes, excited by the addition of salt, the elastic fluid, contained in the interior of the vesicles around the nuclei, is partially pressed out, and escapes in the form of air-bubbles, which are seen with the naked eye, after having added a quantity of common salt to the fresh blood.

14. Hitherto great uncertainty had existed respecting the presence of air in the blood. The experiments of Brande, Collard de Martigny, Nasse, which might lead us to suspect the presence of air in the blood, were refuted by the investigations of Dr. John Davy, Strohmeyer, Bergemann, F. Müller, Mitscherlich, Gmelin, and Tiedemann. I have discovered a new method of extracting the air from the blood, in so evident a manner, that it is impossible to doubt that there exists a great quantity of air in the vesicles. I completely fill a bottle with warm blood, flowing immediately from the vein of a horse, and then hermetically seal the bottle, so that the cork is plunged into the blood, thus absolutely preventing the contact of the air. The blood, in cooling, diminishes in volume, and thus produces a perfect vacuum in the upper part of the bottle; in proportion as this takes place, bubbles of air rise from the interior of the vesicles of blood, and fill the vacuum. The chemical analysis of this air has demonstrated to me that the air extracted from venous blood is carbonic acid. The air of arterial blood is oxygen, mixed with more or less carbonic acid. *Venous* blood, after having been in contact with oxygen gas, and then artificially warmed, gave out in the same way oxygen gas, as well as *arterial* blood.

15. Thus it appears to be proved that in respiration the vesicles of blood absorb oxygen, and preserve it in their interior. The excitement of the vesicular membranes, producing a contraction of the vesicles, drives off the carbonic acid which was produced by the elaboration of the nuclei, by means of the oxygen.

16. We have shown that the different vesicles of an animal contain various quantities of colouring matter (4), and likewise that the contractility of the vesicular membranes is no less different in the different vesicles (10). Now it is remarkable that there is a certain relation between these two qualities; the vesicles which contain the greatest quantity of colour have the least contractility; those which contain the least quantity of colour possess the most contractility. Thus, according to what we have above stated, the young vesicles are very contractile, and slightly coloured; the old ones possess little contractility, and are highly coloured; the degree of colour and the contractility are always in opposition; black blood has but little vital contractility in its vesicles; great excitability to contraction in the vesicular membranes is necessarily conjoined with a deficiency of colour.

17. A third relation (analogy) here suggests itself. The nuclei of the vesicles are larger in proportion as the vesicles are young and their membranes contractile; on the contrary, we find the nuclei diminished as the colour augments, and the contractility ceases. Thus, the faculty of absorbing oxygen, and rejecting the carbonic acid, in respiration, is greater in the vesicles with large nuclei.

18. The vesicles with large nuclei, little colour, and energetic contraction, are young—the recently formed ones; they are found in the greatest number in the rose lymph of the thoracic duct, but they are also to be met with among the more developed vesicles in venous and arterial blood.

19. The primitive formation of vesicles is best observed in the lymphatic vessels. The lymph contains globules of various sizes; the largest are perfectly soluble in ether; and we recognise, by their polished and brilliant appearance, that they are globules of fat; the smallest become granular in their surface, and show the gradual transition into shining globules of fat. Ether still extracts a considerable portion of fat from these granular globules, but they are no longer perfectly soluble. We soon see that the polished globules are metamorphosed into granular globules. In proportion as this metamorphose takes place, we see, forming around the globules, the lymph of vesicular membranes, primitively, absolutely colourless, and perfectly transparent,

and of a globular form. Near these we see more advanced vesicles, which are gradually beginning to assume a colour; and, at the same time, the contraction becomes perceptible, and the vesicles flatten. Now, the globule of lymph enclosed in the vesicle is compressed between the parietes of the vesicle, and is become the nucleus of a vesicle of blood.

20. In proportion as the vesicles, thus engendered, become more perfect, and, being thrown into the course of the circulation, pass more frequently through the lungs, and experience the influence of the oxygen, the nuclei are elaborated more and more, absorbed, and diminish in size, till they entirely disappear. In a direct ratio with this elaboration of the nuclei, the colouring matter continues to augment; the vesicles become almost black, and lose their contractility.

21. The colouring matter is the most ponderous of all the constituent parts of the blood; it is the cause of the vesicles having a greater specific gravity than plasma, although they contain an elastic fluid; but the specific gravity of the vesicles of any individual animal differs as much as the quantity of colour, the size of the nuclei, and the organic contractility. The vesicles, with absorbed nuclei, augmented colouring matter, and diminished power of contraction, are the most ponderous. Thus we see that the blood collected in a cylindrical glass immediately deposits its black vesicles at the bottom of the glass, whilst the less ponderous red vesicles, on account of their lightness, remain suspended in the superior part. Thus we can mechanically separate the different vesicles of the blood.

22. In the vena porta the blood moves very slowly. This vein, in man, has no valves, and its trunk forms a cylindrical cavity, filled with an almost stagnant blood. On the other hand, the old vesicles of the venous blood are very ponderous, and gain time to sink or subside in the plasma, whilst the young lighter vesicles are carried away with the progressive current of the blood. Thus in the vena porta a separation takes place of the young from the old vesicles, and the old accumulate in this vein. This is the origin of the black blood of the vena porta; the black vesicles which are carried into this vein cannot pass out from thence, because they are retained by their weight.

23. The chemical analysis of the blood of the vena porta, which I have given in the system of the circulation, shows us, moreover, that the plasma of this blood is very much diluted, very fluid, gives very little or no fibrine, and contains on the contrary a greater quantity of very dark colouring matter than venous blood; this colouring matter is partially dissolved in the plasma of the vena porta, which is not the case in venous and arterial blood in a state of perfect health.

24. We have shown that the diminished contractility of the membranes of the old vesicles of blood facilitates the solution of the colouring matter of the entire vesicles (12). Now, as there is a detention of the old vesicles, containing a large portion of colouring matter, which, through a want of contractility of the membranes (16), is but slightly enclosed, the fluidity of the plasma favours still more the solution of the colouring matter of the vesicles in the vena porta. The vena porta has, therefore, a twofold destination,—1. To separate from the entire mass of blood the old vesicles, and to accumulate them in its interior; and, 2. To dissolve the old vesicles, which no longer contain nuclei, and the membranes of which have lost their vital energy, so that the whole vesicles are reduced to the residuum of the colouring matter.

25. The old vesicles, deprived of the organic contractility of the vesicular membranes, can no longer be submitted to the influence of the respiration; they no longer possess the expulsive force which is necessary for the separation of the carbonic acid formed in their interior (14, 15), and are incapable of again combining with the oxygen furnished in respiration. Thus, the old black vesicles are no longer reddened by artificial contact with oxygen; thus do these vesicles, which are mixed in the blood of the general venous system, pass through the lungs without alteration, and remain until they are carried successively into the system of the vena porta, to be there secreted.

26. On the contrary, the respiratory process is very active in the young vesicles, and the elaboration of the matter very energetic. Thus, although all the vesicles of blood pass equally through the lungs, yet the influence of the respiration is very unequal upon the various vesicles.

27. The generation of the vesicles of blood in the embryo is similar to their formation in the chyle by digestion, but there are differences in the different classes of animals, amongst which those in the frog and the salamander are of the highest interest. The vesicular membranes in the embryo of these animals form around an agglomeration of several globules of vitellus. In proportion as the vesicle fills itself with the elastic fluid in the interior, the globules of vitellus continue to diminish by organic elaboration, and adhere to the internal surface of the vesicle, which is primarily without colour, and globular. At the moment of the formation of the branchiæ the colour is developed in the parietes of the membranes, the membranes become contractile and flattened, so as to represent perfect vesicles of blood. One or two of the globules of absorbed vitellus forms the nucleus, several of which are often found in these animals. In the embryo of birds and fishes we find this difference, that each vesicle encloses, primarily,

only one single globule of vitellus, which is metamorphosed into a nucleus.

26. The vesicles of blood in the invertebrated animals may be compared to the vesicles of the vertebrata. Thus, they are usually globular, or distended on every side; their membranes are without colour, and without contractile power, at least neither the one nor the other is observable; instead of the nucleus they have grains disseminated, which are attached to the internal surface of the vesicle. The absence of special respiratory organs causes, doubtless, the impossibility of ulterior development. As the want of contractility observable in the invertebrata, prevents the colouring matter, however scanty, from being retained in the vesicles, this matter is dissolved in the plasma. Hence we can explain why the colour of the blood of invertebrated animals does not reside in the vesicles but in the plasma, that is, if the blood be coloured.

29. All my researches, the general results of which I have made known, have led me to admit that the vesicles of the blood are true respiratory organs, and that by means of the affinity which subsists between them and the air, the elaboration takes place of matters which form the plasma. Thus is explained the possibility of a certain degree of respiration without special respiratory organs. The vesicles are neither dead bodies, of amerely chemical character, nor comparable to the infusoria. Their vitality consists principally in the contractility and vital energy of the reticular membrane.

III. *The Plasma.*

30. The plasma is a tenacious, plastic liquid, with an internal organisation, in which the vesicles float.

31. It is the coagulating portion of the blood. Coagulation takes place more perfectly in isolated plasma, and is impossible in the mass of vesicles after the loss of the plasma.

32. Coagulation is a vital act which takes place where the plasma is about to die. In cachectic bodies, or those struck with lightning, or dead from poison, where the plasma had already lost its vitality, no coagulation takes place. This vital action is seen in the plastic production of fibrine.

33. The fibrine has an organic structure, and cannot be separated from the blood by a chemical operation. If, by means of chemical agents, we cause the dead plasma, or the serum of the blood, to coagulate, or be precipitated, we induce a grumous coagulum which has no organic structure. Thus, we must be careful to distinguish *vital* and *spontaneous* coagulation (which I have denominated congelation, *erstarrung*) from a chemical coagulation produced by heat or by chemical agents.

34. As the possibility of the congelation (33) of the blood depends upon the presence of its vital qualities, the state of the vital forces of the whole body, in influencing the vitality of the blood, has also a great influence over the coagulation of the blood.

35. The plasma is formed by the organic elaboration and the metamorphoses of the granules of lymph and of the nuclei of the vesicles of the blood which are developed by the granules of lymph. In the embryo it is formed by the elaboration and metamorphosis of the granules of vitellus, which likewise become the nuclei of vesicles. It is principally the fatty matter of the globules of lymph and of the nuclei, the elaboration of which, by the absorption of oxygen (15), produces plasma. According to my experiments, the quantity of fatty matter in the chyle continually diminishes in a direct ratio with the augmentation of the fibrine in the plasma. The colouring matter is produced as a chemical residuum in this elaboration.

36. Thus, the vesicles of the blood are the generative organs of the plasma; they do not directly contribute to nutrition.

37. The nutritive portion of the blood is the plasma. It furnishes plastic matter to all the organs, by penetrating through the parietes of the vessels to the parenchyma of the organs. The vesicles of blood do not quit the vascular canals. Therefore, in returning from the peripheric system, the plasma is diminished in quantity, while the vesicles, on the contrary, seem to be augmented. But this augmentation depends upon the same quantity of vesicles floating in a diminished quantity of plasma, therefore the vesicles are brought much nearer together.

38. Foreign matters introduced into the blood, if they be afterwards deposited in the parenchyma of organs, or excreted by the secretory organs, are always collected in the plasma, and do not go to the vesicles. Thus, according to my experiments, indigo introduced into the stomach is absorbed by the plasma, and is recognisable in the separated plasma by a green tint, produced by the blue of the indigo and the primary yellowish colour of the plasma. As the vesicles do not absorb the colours received by the blood, the secretion can only issue from the plasma.

39. The vesicles have, however, in consequence of the oxygen which they contain in the arterial blood, an irritating action upon the nervous and muscular systems, and, therefore, the augmentation of the respiratory function excites the action of these systems, just as the diminution of this function depresses them.

40. The plasma has more affinity with the organic systems, and exerts its influence principally in nutrition and secretion. Its augmentation thus influences the plastic, and has little affinity with the animal, life. It is

even possible that the augmentation of the plasma may prevent the exciting influence of the vesicles upon the organs of the animal life, and that the action of these organs may be diminished by the augmentation of the plasma.

Pathological Relations.

41. The blood may suffer in either of its organic elements.

42. If the revolution and secretion of the vesicles do not take place in proportion as new vesicles are formed, the blood becomes diseased through the accumulation of the old vesicles.

43. As the respiration does not exert its effects upon the residuary vesicles, the blood takes a black colour, although the mechanism of the respiration is integrally perfect.

44. The greater part of these vesicles will accumulate first in the vena porta (22, 24) from whence they can scarcely depart, on account of their gravity.

45. But if the vena porta be completely filled by an excess of these vesicles, they will distribute themselves throughout the entire circulatory system.

46. The excessive accumulation of these vesicles in the vena porta necessarily produces a diminution of the plasma, which pursues its course whilst the vesicles are retained. As the plasma, in exerting its plastic effects, excites spontaneous movement of the blood in the peripheral system, the blood of the vena porta, for want of plasma, and in proportion as the augmentation of the ponderous vesicles opposes itself to the progressive motion, will diminish its motion to stagnation. This is the cause of a phenomenon known and admitted by all physicians, but not hitherto understood.

47. If, in these cases, the saline matter accumulates to excess in the blood, as the crystalline and stony deposits indicate, the solution of the colouring matter of the vesicles is more or less impeded, and the retention of the vesicles, and the stagnation, are augmented.

48. An excessive retention of old vesicles in the entire circulatory system, as these vesicles are deprived of the respiratory faculty, prevents the contact of the young vesicles, mingled in the blood, with the air, and might produce pulmonary disease (paralysis and asthmatic affections), owing to the lung being overcharged with vesicles deprived of excitability. Medicines which harden the vascular membranes, as soda, produce, in the same manner, a difficulty in the respiration.

49. The reverse takes place if the mechanism of the respiration be disturbed by a disease in which the vesicles are prevented from respiring, and from depositing carbonic acid. An accumulation of colouring matter will take place, and paralysis of the contractility of the vesicular membranes ensues through an excess of colouring matter. The vesicles, therefore, immediately collapse after the expulsion of the blood, and afford opportunity for the formation of buff in pulmonary disease, whether inflammatory or not.

50. Thus, the resolution and natural secretion of the vesicles may be augmented so as to produce a diseased state. This happens in two ways: 1. Through a primary deficiency of tonicity, and of the contractile faculty, of the membranes, so that they become in a state of relaxation, which admits of an easy solution of the colouring matter. 2. By a diminution of the solid parts of the blood in general, and relative augmentation of the water.

51. Excessive and premature resolution of the vesicles, through deficiency of organic tonicity and contractility, takes place in chlorosis.

52. In dropsy, premature dissolution is induced by excess of aqueous parts. In both cases the generation of plasma is suspended, and a cachectic state is developed, owing to imperfect nutrition.

53. The development of plasma is often affected by imperfect formation of the nuclei of the vesicles. This happens in affections of the digestion, in which the fatty substance is not perfectly developed in the chyle, so that the elaboration of the globules of chyle must be defective, and not less so the plasma formed by this elaboration. Scrofulous and scorbutic diseases are of this kind.

54. The contractility of the vesicles is sometimes perfectly paralysed, and, consequently, all the functions of the vesicles are immediately suspended. Not only the action of respiration, but also the excitory action of the animal functions, and the nutrition, cease absolutely and instantly. This appears to be the state of the blood in the Asiatic cholera. I have twice observed the blood vesicles taken from a patient who had cholera. These vesicles lose all their *turgor vitalis* and are in a state of collapse, like the vesicles of blood which is almost putrid. We must, however, observe, that the precise distinction between the different conditions of the blood vesicles requires great exactness, in order to make the comparison of the phenomena in detail and in totality. It is possible that in this malady all the symptoms may be only the effects of this paralytic state of the blood. This is, also, the reason why the plasma dissolves the colouring matter, which is never dissolved during the natural contractility of the vesicles.

55. A premature solution of the colouring matter of the vesicles of the blood may be induced artificially by the introduction of a large quantity of water into the body, in the form of drinks. In the journal of Hufeland, 1838, I have described the experiments, ac-

cording to which an immediate addition of from one to two per cent. of water to a quantity of blood taken from the body, produces a remarkable solution of the colour by the plasma. An addition of from four to six per cent. makes a very strong solution. I have, moreover, found, by experiment, that the blood of a living animal absorbs five or six per cent. of water introduced, in the form of a drink, into the stomach, so that the plasma was coloured almost red by the solution of the vesicles.

56. On the sea-shore, where the blood absorbs during respiration a large portion of humid air, this solution, precipitated from the colour of the vesicles, happens not unfrequently, and obstructs the generation of plasma, and the nutrition of the body.

57. The plasma itself may change in an anormal manner, and become diseased. It is transparent, and slightly tinged with yellow, though the colour is hardly perceptible in the state of health. In phthisical horses I have found the plasma, after the separation of the vesicles, very turbid, almost milky, and of a dirty colour, on account of the pathological matters retained and absorbed. The faculty of coagulating varies no less, whether it be in the degree in which it coagulates, or in the quantity of fibrine produced, or in the quality of the fibrine, which is, in the normal state, tender and very elastic; in the pathological state, frequently hard and brittle.

Therapeutic Relations.

58. The medicines which act upon the blood exert their effects either on the plasma or on the vesicles of the blood, or on both. Many new considerations present themselves here as to the effects of remedies.

59. Vegetable colouring matters, such as indigo or madder, only act upon the plasma, which is turned green by indigo, and brown by madder, without the vesicles undergoing the slightest alteration.

60. Iodine exerts its effects principally upon the membrane of the vesicles. These membranes harden so that water does not produce the least change in them; they turn brown with iodine, and lose all contractility, so that the vesicles no longer contract, but the hardening of the membrane prevents its power of relaxation. By its effects on the living body, the use of iodine prevents the action of the respiration of the vesicles, suspends, more or less, the formation of the plasma, prevents, afterwards, the dissolution and excretion of the vesicles, and produces a long train of secondary effects. The augmentation of the action of the lymphatic system is consecutive.

61. The neutral salts act simultaneously on the plasma and the vesicles. They induce in the vesicles an organic contraction, followed by an expression of the air, and a lighter colour in the venous blood. The action of respiration appears to be suspended by this contraction, for, according to my experiments, these vesicles no longer absorb oxygen which is shaken with them. Therefore, the new production of plasma is suspended by the salts. The effect upon plasma is rather remarkable. The plasma is liquified, so that it does not coagulate if the quantity of salt added be large, and it coagulates imperfectly if the quantity added be small. In this latter case the formation of the fibrine is always more or less diminished and altered. The action of nutrition by the plasma is thus diminished or suspended on each hand.

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PULMONARY CALCULUS.

Mr. Crampton exhibited a mass of cretaceous matter, of stony hardness, taken from the lung of a phthisical patient; it was somewhat larger than a tennis ball, and consisted of a series of spherical masses which, when broken, presented the appearance of concentric laminæ; its composition was ascertained to be almost entirely carbonate of lime.—(*Museum, Park-street.*)

GRANULAR KIDNEY, WITH PERMANENT PATENCY OF THE AORTIC VALVES.

Mr. Ferrall exhibited specimens of these diseases, both from the same individual.

The kidneys presented an extreme degree of the granular state, and were, as Mr. F. generally found them, when so changed, small and contracted, and analogous to the contraction of the mamilated liver in an advanced stage.

The heart was so large as to conceal the lungs, and occupy a large portion of the chest; all the cavities were dilated, and the walls hypertrophied. The only valvular disease was at the aortic opening. The free margins of the semilunar valves were rolled up, and very much thickened; these turbinated edges could not be drawn out as far as the centre of the opening; their consistence was cartilaginous, but there was no earthy deposit; the free edges were also shortened, when measured between the points of their junction with their associate valves, their unyielding condition causing the force of the reflux current to be partly expended upon the remainder of the valve, which sunk into a deep pouch.

These lesions were diagnosticated nine months before the death of the patient, a young man, 26 years old. He began to complain about eighteen months ago. His prominent symptoms were—increasing dyspnœa, anasarca, ascites, and a full, vibrating, but easily compressed, pulse; constant or-

thopnea, and spasmodic breathing in paroxysms. He was twice relieved by acupuncturation. His final sinking followed the entire disappearance of the anasarca, after the third employment of this measure. He was in a semicomatose state for a day or two before death. He never had hæmoptysis, and depletion even by three or four leeches, to relieve pain, produced such a feeling of sinking and suffocation as was only relieved by a full dose of wine. He was always improved by full diet, and for several months consumed a bottle of wine daily.

The principal physical signs were to-and-fro sound over the sternum, loudest about its middle, and extensive dulness on percussion; dulness, with absence of the respiratory murmur at the lowest part of the chest posteriorly, and œdematous râles higher up; these varied with the anasarca and occasional increase of fluid in the pleura.

The urine was copious, pale-coloured, and albuminous, during the whole period of Mr. Ferrall's attendance on him, nearly nine months, and only became scanty just before death. Its specific gravity was always under 1006.—(*Museum, St. Vincent's Hospital.*)

FOLLICULAR DISEASE OF THE INTESTINES IN TYPHUS FEVER.

Dr. Stokes presented a series of preparations in wax, and coloured after nature, which were made by Dr. Paterson, of Glasgow, to illustrate the condition of the intestines in the late epidemic in that city. These were transmitted to Dublin by Dr. Staberoh, of Berlin. Some of these preparations were confirmative of Dr. Staberoh's opinion, that the first stage of the typhoid affection of the intestine is an infiltration of a peculiar matter, which occurs without any accompanying vascularity, and that the consequent inflammation of the mucous membrane is the result of a reaction induced in the part by the presence of the morbid matter.

INTRA-THORACIC CANCER.

Dr. Stokes exhibited a series of preparations illustrative of intra-thoracic cancer.

1st. Circumscribed lardaceous masses, varying from the size of a pea to that of a walnut, imbedded in the substance of the lung, and between which the pulmonary structure was healthy; no ulceration existed in any of these masses.

2nd. Cancerous degeneration of a portion of the upper lobe of the lung, with complete obliteration of the pulmonary structure.

3rd. Cancerous degeneration of nearly the whole lung.

4th. Encephaloid tumour in the posterior mediastinum, pushing the left lung downwards and forwards, and compressing the œsophagus.

5th. Two specimens of large encephaloid tumours, in the posterior mediastinum, surrounding the pulmonary artery. In one of them the trachea was compressed, and the left subclavian obliterated.

5th. An almost complete degeneration of the right lung into a mass of encephaloid disease, but differing from any of the former in the occurrence of ulcerative action; a large oblong cavity occupied the centre of the lung, communicating on the one hand with the bronchial tubes, and on the other by several irregular fistulæ, with a superficial ulceration, which, to a great extent, had separated the lung from its investing pleura. The cavity thus formed was occupied by air and purulent matter; so that there was an empyema and pneumothorax, not in the cavity of the pleura, which was obliterated by adhesion, but beneath the pulmonary pleura, and exterior to the lung.—(*Museum, Park-street.*

CANCER OF THE LUNG AND HEART.

Dr. Law presented a drawing, exhibiting extensive cancerous disease of the left lung; numerous tumours, of various sizes, were found imbedded in the substance of the organ; some having a consistence similar to that of brain, others were hard and cartilaginous; in some of the latter a milky fluid existed in the centre, and they presented a fibrous structure, the fibres occasionally presenting a concentric arrangement; a mass of soft encephaloid matter was diffused through the centre of the lung; several tumours, likewise of a cancerous nature, existed between the base of the lung and the diaphragm; and one was noticed upon the anterior surface of the heart, and another imbedded in its muscular structure; softened tubercles existed in the liver, and one of the costal cartilages presented a tumour of the same fibrous character as those observed in the lung.

CYSTS CONTAINED IN THE PARIETES OF THE HEART.

Mr. Bigger exhibited a heart, the parietes of which contained a number of cysts, about the size of a small bean: some were merely inserted, as it were, between the carneæ columnæ, while others were imbedded in the muscular substance of the heart, particularly towards its apex; they contained a fluid of a purulent aspect; the patient from whom the preparation was taken died of phthisis pulmonalis, and never complained of any symptom connected with disease of the heart.

Mr. Bigger next exhibited some preparations illustrative of the pathology of purpura; he presented portions of the pericardium, dura mater, pia mater, and also a portion of the anterior lobe of the brain. The sub-serous tissue of the pericardium and dura mater, were studded with small dots of blood, about the size of a pin's head; some of which had burst through the in-

vesting membrane, leaving small excavations; in the anterior lobe of the brain there had likewise existed a coagulum, which had broken down the substance of the brain, and forced its way into the left ventricle; there was a petechial spot upon the corresponding part of the arachnoid membrane: these preparations were taken from a patient who died with the chronic form of purpura.

Mr. Bigger also exhibited another preparation, consisting of a portion of the intestinal mucous membrane, covered with minute ecchymoses; which in many places were elevated, raising the epithelium, while in others they had burst through it, leaving dark excavations; he contrasted the petechiæ with those of the plague, which he illustrated by drawings.

TUBERCULAR DISEASE OF THE PERITONEUM.

Dr. GREENE presented a specimen of this affection. The peritoneum was thickly studded with tubercles, varying in size from the head of a pin to that of a walnut; a hard, uneven, nodulated tumour, appearing to sink deep into the pelvis, was detected in the left inguinal region. During life, a friction sound was heard over the hepatic region previous to death. The ovaries were converted into a tubercular mass, with hydatids on their surface. The omentum was shrunk, and filled with solid white tubercles. The peritoneum opposite the convex surface of the liver was similarly affected.

SLOUGHING OF THE VAGINA AFTER PARTURITION.

Dr. EVORY KENNEDY exhibited a series of preparations, showing extreme sloughing of the vagina, after parturition.

1. Separation of the whole mucous membrane of the vagina. In this instance the patient had perfectly recovered, and the vagina was pervious. He alluded to several similar cases of recovery, in which the application of strong nitric acid was extensively had recourse to.

2. A recent specimen of gangrene of the vagina and uterus; the patient died six days after delivery. The symptoms of gangrene made their appearance on the third day.

3. Partial adhesion of the walls of the vagina after first labour; which did not, however, prevent subsequent impregnation; the patient died eight days after her second delivery, of sloughing of the vagina and uterus.

4. Sloughing of the mucous membrane of the vagina, which the patient survived, but afterwards died of hectic fever, induced by the formation of a large abscess in the surrounding cellular tissue.

5. Sloughing of the vagina and uterus; some of the vessels of which had given way, and the patient died of hæmorrhage.

COMPRESSION OF THE LEFT BRONCHIAL TUBE BY A SMALL ANEURISMAL TUMOUR.—PERFORATION OF THE ŒSOPHAGUS.

Dr. GREENE presented a specimen of aneurism of the descending portion of the neck of the aorta; the left bronchial tube lay directly in front of the tumour, so that it was compressed by the arch of the aorta anteriorly, and by the tumour posteriorly; it had burst into the œsophagus.

In this case the principal symptoms were dysphegia, loud ringing cough, stridulous respiration, severe dyspnœa, increased by lying on the left side, feebleness of respiration in the left lung, tracheal breathing under the clavicles, and greater dilatation of the right side during respiration; the aneurism gave no impulse, nor was there any *bruit de soufflet*.

OBLITERATION OF THE ABDOMINAL AORTA, THE LEFT ILIAC AND FEMORAL ARTERIES.

Mr. HUTTON exhibited a preparation, in which the abdominal aorta, for two inches above its bifurcation, the left iliac and femoral arteries, were filled with fibrine; the lining membrane of the iliac and femoral vessels was here and there vascular and thickened, but the coagulum was not connected to the vessel by any false membrane; the coagulum in the aorta was deprived of colouring matter, and contained a small quantity of thick purulent fluid in the centre; its lining membrane presented no signs of inflammation; the iliac and femoral veins were also filled with coagula, but did not appear to be inflamed.

The individual had died of gangrene of the extremities, affecting in the first instance the left foot; the process of obliteration of the left iliac artery was distinctly traced during life; the gangrene of the right lower extremity did not begin until after the obliteration of the aorta.—(*The Dublin Journal*, 1839.)

MEDICAL STATISTICS.

Report of the Results of Revaccination in the Prussian Army in the year 1838, *drawn up from Official Documents.*

By DR. LOHMEYER.

TOTAL number of individuals inoculated (revaccinated) 42,041, of which number there were cicatrices from former vaccination—

distinct, in	33,819
indistinct, in	5,645
none, in	2,577
The resulting vaccination was regular, in	19,117
irregular, in	8,672
did not take, in	14,252
In the cases of failure the vaccination was repeated with effect, in	2,306
without effect, in	10,424

Of the individuals in whom the disease was perfectly regular, there were from

1 to	5 pustules in	8,787
6 ..	10	5,581
11 ..	20	4,056
21 ..	30	693

Of individuals revaccinated with effect in the present and former years, there were affected, during 1838,

with varicella 19
.. varioloid 10
.. true small-pox 2

It appears, from the preceding statement, that the results of revaccination in the army, during the year 1838, closely resemble those observed in 1837, in both years about 42 in the 100 exhibiting true vesicles running a regular course. The resemblance would have been still greater, but for the circumstance that many men were included who, according to their own account, had been previously revaccinated at their own homes, but who exhibited no marks on their arms; these were almost always among the failures. According to the reports of the medical officers, there were also many cases in which the development and course of the disease were disturbed, chiefly through carelessness on the part of the individuals in allowing the pustules to be broken or otherwise injured.

The opinion formerly pretty prevalent that, failing lymph immediately from the cow, the only proper matter for vaccination is that taken from children with good pocks, has now few supporters among the military surgeons, as they have ascertained by manifold experience that the lymph from well-formed pocks of adults, whether in the first or second vaccination, produces as fine and regularly-proceeding vesicles as that from children. Accordingly, it is the practice of most of the medical officers, only in the commencement of the revaccination to use lymph from children. Many even, like the Wurtemburg vaccinators, give the preference to the latter for communicating the disease to adults.

Inoculation with dry, preserved lymph, was in a great degree ineffectual. In a child vaccinated with lymph of this kind, there appearing no result, it was again vaccinated, eight days later, with fresh lymph from the arm, after which not only all the latter punctures, but also two of the former took, and exhibited good and regularly proceding pocks. In the case of a man of the 6th artillery brigade, the pocks did not appear until six weeks after the inoculation (two on the right and three on the left arm), and their development was accompanied by so much inflammation in the vicinity, and gave rise to so much fever, that it became necessary to remove the patient into the hospital.

In several individuals natural small-pox appeared soon after the vaccination. In two cases this happened before the third day, and in these the vaccination had no result. In two other cases, on the contrary, the modified small-pox (varioloid) appeared when the vaccine vesicles were in perfection, and then they sustained no alteration in their progress.

The whole number of small-pox cases in the army, in 1838, were 111; 56 being characterised as varicella, 43 as varioloid, and 12 as true variola; in this number are included the 31 cases formerly mentioned as occurring after successful revaccination. Seven cases of the small-pox were fatal, but no fatal cases occurred among the 31 just mentioned; in all of whom, on the contrary, the disease was mild, and indeed quite insignificant. The greater number of cases of small-pox (as was also the case in former years) took place in recruits shortly after joining the army, and before revaccination could be employed. Some of the older soldiers, however, were also attacked with the disease in some of its forms; for instance, some of the subordinate officers who had been previously revaccinated without effect, or who had entered the army previously to the introduction of the practice of revaccination. Most of the cases of natural small-pox occurred in the 7th division, viz., 37, and for the most part in the garrison of Minden. In the 4th division not a man failed with small-pox, although the troops mixed more or less with the inhabitants of their stations or of the vicinity. This favourable result is principally to be attributed to this circumstance—that in the district of the 4th division the recruits joining the army in the autumn of 1837 were, for the most part, subjected to revaccination immediately on their arrival; whereas, in other cases, it has been customary to put off the revaccination of such recruits, at least in a considerable proportion, until the spring.—*Medicinische Zeitung, May* 8, 1839; *and Foreign Medical Review*, No. XV.

How to get a Practice.—A physician of Montpelier was in the habit of employing a very ingenious artifice to bring himself into notice with the public. When he came to a town where he was not known, he pretended to have lost his favourite dog, and ordered the public crier to offer, with beat of drum, a reward of twenty-five louis to whoever should find it. The crier took care to mention all the titles and academic honours of the peripatetic physician, as well as his place of residence. He soon became the talk of the town,—"Do you know," says one, "that a famous physician has come here, a very clever fellow, of high academic honours, he must be rich, for he offers twenty-five louis for finding his dog!" *The dog was not found but patients were.—Physic and Physicians.*

THE LANCET.

London, Saturday, August 10, 1839.

Last week we gave a sufficient report of the proceedings of the Provincial Medical and Surgical Association at Liverpool. A friend, but, we presume, no friend of the Association, has since forwarded to us a copy of the "Worcester Journal," which entitles itself "the accredited organ of the Association from its commencement." Mr. Berrow, as usual, devotes a leading article to the "high claims and pretensions of the Association;" and declares, in his incomparable manner, that he "shall ever fondly "cherish the recollection that the small but "pellucid spring, now swollen to a mighty "river, took its rise within the walls of this "our ancient city, the time-honoured Vigor-"nia,—*a fact in itself sufficient to stamp her "modern history with imperishable renown— "to obtain for her the lasting gratitude of "posterity!*" The Report of the proceedings in the Worcester paper ends, after a list of the majority of the gentlemen who were at the dinner, with a very curious interrogatory, which it would be an affectation of modesty in us not to quote:—"After read-"ing the above list, will the *ill-natured and "splenetic* Editor of The Lancet reiterate "his statement, made last year, that the "Society was composed of individuals who "followed servilely in the wake of a few "physician's carriages?" Mother Berrow, "the accredited organ" of the "pellucid spring, now swollen to a mighty river," console yourself; we shall be guilty of no damnable iteration of the kind, for reasons which will appear in the course of this article.

The past history of the Council of this Association may be summed up in a few lines, although it is stated that its "Transactions" fill several volumes. We hailed the appearance of the Association, and encouraged its earlier aspirations, as the organisation of the aggrieved members of the medical profession can alone wring justice from the hands of the iniquitous Corporations. Members enrolled their names upon its lists in the expectation that the "great designs" of the programme were to be realities; they expected that strenuous efforts would be made to urge their claims upon the country, to rescue them from a degraded state of subordination to self-elected Corporations; to break up vexatious monopolies in education; to destroy the anomalous powers of nineteen licensing bodies; to suppress quackery: they expected that the medical institutions of the country would be reformed; that full scope would be given to talent and industry; that men would be honoured and rewarded in some proportion to their services; and that measures would be taken to improve the health of the community, and particularly of the poorer classes. Have these expectations been realised? Has the Council, or the half dozen members who really *manage* the Council, responded to the legitimate anticipations of medical reformers,—and, under that head, we are confident may be included nine-tenths of the members? For what have we waited? What has been done during the seven tedious years of its existence? its seven dinners in seven towns? and its seven times reiterated speeches? Have not the six years been a Sabbath of perpetual rest, and abstinence from everything good and useful? And who that listened to the promises has not looked at the blighted performances with a bitter disappointment? Were we not justified in regarding with jealousy a Council which, instead of leading the way, and cherishing the elements of improvement, exhibited a tame spirit of acquiescence under acknowledged evils, a disposition to mislead reformers, or an undisguised intention to betray reform, and to convert the general practitioners of the country, whose interests we could not forget, into the servile instruments of some half-dozen Doctors' swollen notoriety,—gentlemen who deemed their own glorification,

mayhap, a "great object,"—a great end of associated existence,—and, under vinous inspiration, held up each other to vain-glorious after-dinner laudation? It was, indeed, a "*Société d'Admiration Mutuelle.*" Faithful friends to the Association,—that is, to the great majority of the members, and to the substantial interests of the profession,—we did not shrink from our duty as the organs of public opinion, and denounced the inanity of the whole proceedings; whereupon Mr. Crosse, a wise man of the East, too plainly disclosed the secret sympathies of the cloaked conspirators, and denounced a free medical press, while his friends responded, and toasted the Medical Corporations; yes, toasted the Halford College,—toasted the self-elected *twenty-one* Councillors in Lincoln's-inn-fields,—toasted the Blackfriars Company. This was a new phasis of existence; the moon was at the full; and the ancient festival of the ass and the turncoats was upon the verge of revival, when the idolatrous priest sang,—

> Orientis partibus,
> Adventavit asinus,
> Pulcher (?) et fortissimus;

and, instead of *Ite missa est*, brayed with all his might three times, and the people brayed in sanctified echo,—deep, and long prolonged.

The absurdity of the mad turn which the leaders had taken now became apparent; the Corporations looked coldly on the shorn Doctors, and instinctively shrunk from incestuous embraces; the better spirits were disenchanted; and the Council had the sagacity to perceive that the alternative of a dissolution, or a new direction, was presented. Reform was whispered at the meetings, and a Committee—not a Committee of Medical Reform—but a hybrid "Committee, to watch over the interests of the profession," was appointed at Cheltenham—lived, lingered, and did nothing, at the Bath waters. The murmurs were louder; the honest, energetic members expressed their wishes with a becoming earnestness; the reflecting members of the profession felt that they were leaning upon a broken reed, and flocked around the banner of the British Medical Association, which had laboured openly, zealously, and effectually, in the cause of Medical Reform. The medical profession in Ireland declared for reform; the Worcester Association felt the insignificance of its vegetative life—that it must "do or die;" and a petition for Medical Reform was produced at the last meeting,—the first year of its useful existence.

The Liverpool Meeting is the first at which any sign of decisive action was exhibited; and it is remarkable, that in proportion as the deeds begin to show themselves, words cease to be abused, and the tone of oriental figure, swagger, and exaggeration, is lowered to plain English expression. The actors can contemplate their own efforts without turning giddy. Mr. Turner, of Manchester, attacked the narrow regulations of the London College of Surgeons, which give a monopoly to the London Hospital surgeons. The Poor Law Committee, with Mr. Rumsey and Mr. Ceely—two of the most valuable members of the association—was re-appointed. Dr. Cowan, of Reading, read a long Report on Quackery: Dr. Barron, a Report upon Vaccination, and a sensible petition on the subject, to which Mr. Wakley recently called the attention of Parliament. Dr. Hastings pledged the association to reform; and defended its past inaction, in words which it will be but justice to him to quote:—

"And what have we done? I am aware that this question has been asked disparagingly by persons not friendly to us; but I will endeavour to give an answer; and I will allude first of all to our volume of the *Transactions*, upon which I shall offer no comment myself, but merely quote the opinion of the editor of a northern journal; and as he has never shewn any partiality towards us, we can therefore place full reliance upon his criticism. He says—'he considers the work as a whole, unsurpassed by any work of the kind in this country, and in some respects unparalleled by any on the continent.' This, therefore, we may claim, having published a work which has procured for us so much praise and reputation. We have also, in addition, sections appointed on important branches of medical science;

and I will mention one—the vaccination committee, who this day presented a report which has placed upon a more secure foundation than ever the value of that great discovery, and the immortal name of Jenner, upon which it is based. We have also not forgotten that it is our duty, as men belonging to an honourable profession, to make provision amongst us for those whom fortune does not favour; and we have therefore instituted for them a succour in the hour of distress, which was so much needed. We presume also to be enabled, by assiduous, careful, and judicious management, to obtain for our profession that reform which all believe to be necessary, and the attainment of which we are not inclined to hurry, or rather *prevent*, by any injudicious haste. (Great cheering.) In every part of this empire we have thrown out our branches, which are all employed in pushing forward the objects we cultivate. We then may say we have planted a vine, which is now shooting forth its fruitful branches, and which will produce, in its due season, ripe and wholesome and generous fruit. (Cheers.) This is what we have done. And what are we going to do? Our response is this: we are not about to slacken, but to increase our efforts. Every member must be determined to assist us forward by his individual zeal and discretion. The times are favourable for this (hear); and at this meeting at Liverpool circumstances have arisen which tend to make this more probable. Our friends from the "green isle" have come among us (applause); they have brought us the message of peace, they have brought the olive branch, they have invited us to co-operate with them in the cause of medical improvement; and can we hesitate as to the course we shall pursue? (Cheers, and "No, no.")

We shall not repeat what we have said respecting the money which has been squandered in printing "Transactions;" nor discuss the inutility of another "Benevolent Fund." With these exceptions, it will be observed that Dr. HASTINGS was not able to cite anything that the Association had done, previous to the Liverpool meeting. He does not even advert to the "great object" of which so much was formerly vaunted, namely, the preservation of harmony in the profession. The Association was to keep the members in *tune* for a guinea a year. And the oblivion is convenient; for paltry, personal, trading squabbles, have increased rather than decreased under its auspices.

The co-operation of the Provincial and the Irish Associations, with the British Medical Association, in promoting, and ultimately carrying, a measure of Medical Corporation Reform, is the distinctive feature of the Liverpool Meeting, and, in fact, is the only important act of which the Association can fairly feel proud. We shall examine the Report and project of the Reform Committee on a future day.

The BERROW Reporter—the accredited organ of the Association—makes Dr. WEBSTER say, that the Tender system was to be abolished after the present year, and that the rate of remuneration is to be raised from 3*s.* 3½*d.* to 6*s.* 6*d.* or 7*s.* per case, and that "this success is *almost entirely owing to the exertions of the Association.*" The President of the *British Medical Association* could have made no such statement; honour to whom honour is due; and it will be discovered that without the British Medical Association, and without our own exertions, the Provincial Medical and Surgical Association would have literally succeeded in nothing.

THE BISHOP OF LONDON, we are glad to perceive, has called the attention of the House of Lords to the shameful neglect of the Public Health in London. A Committee of the House of Commons sat on the subject; and a Metropolitan Improvement Bill now before the House, cannot fail to have a most beneficial effect. Will the BISHOP OF LONDON take no steps to prevent the burial of the dead in the heart of the metropolis, and to lessen the funeral expenses which fall so heavily in cities upon the poor tradesman and mechanic, and upon all immediately above the condition of a pauper? His Lordship recommended the Poor-Law Commissioners' Report, which we noticed last year, to their lordships' notice; but, for reasons which it is unnecessary to explain, never referred to the *Registrar-General's Report*, in which it is shown, for the first time, from numerical facts, that the mortality in parts of the metropolis exceeds four per cent., and in other parts scarcely exceeds two per

cent.; so that the life is abridged, and sickness is increased, one half in certain districts.

We recommend the subject to the attention of medical men in the other large towns of the country. All things considered, Dublin, Liverpool, Edinburgh, Manchester, Glasgow, and nearly all the provincial towns are less salubrious than the metropolis; and the health of the population is as susceptible of improvement. These facts should be pressed upon the attention of the Municipal Corporations.

A MODERN DISCOVERER.

Our attention has been called by a correspondent to the following Advertisement which appeared on the cover of THE LANCET of Aug. 3rd:—

"In August will be published, illustrated by Plates, "A TREATISE ON VARICOSE CAPILLARIES, as constituting the Structure of Diseased Hepatic Ducts. To which is added, an Account of a new FORM of the PUS GLOBULE. By THOMAS GORDON HAKE, M.D., late Physician to the Brighton Dispensary, Orphan Asylum, &c.

"London: Taylor and Walton, Upper Gower Street."

Well knowing, in common with our correspondent, that Mr. KIERNAN, the most patient and accomplished investigator of animal structure in these kingdoms, has laboured almost incessantly during five years on the subject of a paper, long promised from his pen, on "The Anatomy of Cancer," and that he possesses numerous preparations of "VARICOSE CAPILLARIES," which have been examined by many distinguished members of the profession, and the most valuable of which, we find, he had liberally allowed this advertiser to inspect during the protracted period of *one hour and a half*, with the microscope,—we thought it right to make some inquiries into the fact, apparently announced by the above advertisement, that Dr. HAKE had something to publish on the subject of "VARICOSE CAPILLARIES," which was, or could by possibility be, *his own*. The result we communicate to our readers, in the subjoined statement, which we take immediate steps to lay before the profession, in order that the plumes of Dr. HAKE may at once take their proper rank as borrowed ornaments. The correspondence that follows will be found to verify our chief allegations. The reputation of Mr. KIERNAN will be European, and demands the care of his countrymen, as it has already become their pride.

To the recent researches of Mr. KIERNAN we have already alluded. Treading at an infinite distance as an anatomist and physiologist, came Dr. HAKE. With the generous scientific spirit which has ever distinguished Mr. KIERNAN, that gentleman has very frequently allowed Dr. HAKE to see the greater number of his preparations, illustrative of the anatomy of cancer. On one of these occasions, Dr. HAKE had been told of other preparations in his friend's museum, which particularly elucidated Mr. KIERNAN's views respecting the mode of formation of diseased growths. These Dr. HAKE had repeatedly asked to be shown, adding, that "if Mr. KIERNAN would communicate his opinions to him, he would"—to use his own words—"be as silent as the grave" respecting them. About five weeks ago, Mr. POWELL, the well-known optician, and Dr. HAKE, passed an evening with Mr. KIERNAN, when Dr. HAKE was shewn one of the preparations which he had so much wished to see. After its minute examination with the microscope, he said that it exhibited a varicose state of the capillaries, a remark to which Mr. KIERNAN replied in the affirmative, at the same time, during much conversation, fully explaining to Dr. HAKE the various stages of disease exhibited in different parts of the preparation. Dr. HAKE observed, in conclusion, "This is the most important anatomical fact that has ever come to my knowledge." Mr. KIERNAN, thinking that Dr. HAKE was sufficient judge of the "importance" of the facts that had come under his own observation, made no remarks on this opinion, but simply concluded from it that very few important facts had ever come to the knowledge of the critic. On Tuesday last, Mr. KIERNAN called on Dr. HAKE on a matter of business, when the latter observed, "I have discovered your secret, namely, the varicose state of the capillaries in disease," considerately adding, however, that he would do Mr. KIERNAN the justice to state that he had *made the* DISCOVERY *after seeing Mr. K.'s preparation!* Mr. KIERNAN experienced

some surprise at the effrontery of this announcement, saying that, of course, he had shewn the preparation to Dr. HAKE under an unhesitating impression that he would understand it, by means of a microscope, without a previous explanation. But, Dr. HAKE maintained, that, *as* Mr. KIERNAN *had not told him before he saw the preparation, that it exhibited a* VARICOSE STATE OF THE CAPILLARIES, and as he (Dr. HAKE) had said, *after* its examination, *that the capillaries were in a varicose state*, and as he (Dr. H.) had afterwards discovered the same condition *in a preparation of his own*, MADE SINCE THAT TIME, *at his own house*, that, upon these grounds, and under these circumstances, he felt entitled to claim the title of having discovered what he considered to be "the most important anatomical fact that had ever come to his knowledge!" And to this unexampled statement he added, as an additional claim to the great name of *discoverer*, that even had not Mr. KIERNAN already explained the facts to him, he (Dr. HAKE) *should have made* THE DISCOVERY *himself!*

Now, it is perfectly well known amongst the scientific men of this metropolis, that Mr. KIERNAN has laboured, as we have above said, almost incessantly, during *five years*, on the subject of the "Anatomy of of Cancer." He may, then, well have been amused, when Dr. HAKE subsequently informed him that *he* (the doctor) had worked during "*several hours*, for *several days*," on the subject of his present alleged *discovery*, and that "his (Mr. KIERNAN'S) views were quite correct." How Dr. HAKE could investigate those views, and pronounce their correctness, unless they had first of all been explained to him by some one else, it is difficult to guess.

But the boldness of Dr. HAKE must make the greatest plagiarists stare. Mr. KIERNAN has frequently made to his friends the following statement:—That he had laboured, unremittingly, during eighteen months, from eight to ten hours every day, to ascertain the mode of formation of morbid growths. At the end of that long time, although he had acquired an intimate acquaintance with all the *appearances* which they presented, yet he had not acquired a single idea, true or false, respecting the mode of their *development*. He told Dr. MARSHALL HALL, that he had given up the subject in despair. Just at that time Dr. F. HAWKINS, of the Middlesex Hospita sent to him the abdominal viscera of a woman who had died under his care. Mr. KIERNAN resolved to make another attempt at his object, and then succeeded to the utmost of his wishes. Since that time, a period now of more than three years, he has additionally worked until he can say, —"I have *a thousand preparations of cancer*, "and so convinced am I of the correctness of "my views on the subject, that I am certain "they will be very generally adopted as "soon as explained." And in this conviction every scientific man in Europe who has had an opportunity of seeing Mr. KIERNAN'S preparations, must unhesitatingly share. But in the sixtieth month of the five years of Mr. KIERNAN'S labours, in steps Doctor THOMAS GORDON HAKE, "late Physician to the Brighton Dispensary," and, with a coolness which is quite consistent with the exertions [of several *hours* during several *days*, comes forth with his "Treatise on Varicose Capillaries, *as constituting the Structure* of Diseased Hepatic Ducts." We cannot exactly understand varicose capillaries *as constituting the structure* of—anything,—but perhaps Dr. HAKE can account better for Mr. KIERNAN'S discoveries than for his own English.

To return to the interview which we have been describing. At its close Mr. KIERNAN told his conscientious acquaintance, that as he should be sorry to have any "misunderstanding" with him on a question of scientific property, he was willing to leave the matter in dispute to the decision of a third person, and having made this intimation, he awaited the arrangements of Dr. HAKE for four days, when the following note reached him in reply to a request for some information as to the intentions of the "discoverer" of Gordon-square:—"The course I shall take will be *to make public what I have discovered*.—Believe me to be, &c.

"T. G. HAKE.

"42, Gordon-square, Saturday."

On Monday last Mr. KIERNAN addressed the following letter to Mr. POWELL, and received the annexed reply:—

"33, Beaumont-street, Aug. 5, 1839.

"Dear Sir:—You and Dr. HAKE passed an evening with me about a month ago—on that occasion I showed Dr. HAKE a preparation, which he examined during a considerable time with the microscope. Dr. HAKE now claims what I then showed him, as a discovery of his own, and is about to

make it public. Will you oblige me by stating to the best of your recollection what passed with reference to the preparation? I am, dear sir, very truly yours,

"F. KIERNAN.

"To Mr. Hugh Powell."

"24, Clarendon-street, Somers-town, August 6, 1839.

"Dear Sir:—In answer to your letter requesting me to state what took place on the evening I met Dr. HAKE at your house, I beg to inform you that I will do so to the best of my recollection, though, not being acquainted with anatomical preparations, I am able to recollect but few of the many observations that were made.

"After we had been using the microscope for some time, you produced a preparation which we all examined. During the time (which was about an hour and a half) that Dr. HAKE was examining it with the microscope, you pointed out several different parts to him, one of which you said was disease in its most incipient state. Dr. HAKE said he could sit and look at it all night, and wondered you had not published it; he thought, if you did not soon do so, it was likely some one would do it before you, and he added that he would be as silent as the grave. Dr. HAKE observed to me, as we walked home, that he thought you were too careless about it, and that some one would certainly publish an account of the same subject before you. From what you have stated to me in your letter it is evident that Dr. HAKE would not have been long in guessing the person that was likely to attempt to anticipate you.—I am, Sir, yours truly.

"H. POWELL.

"To F. Kiernan, Esq."

On quitting Brighton, Dr. HAKE designed to rest in London, but he has changed his mind, and *booked* himself on Saturday *for Coventry*.

The Pharmacopœia of the Royal College of Physicians of Edinburgh. pp. 217. 12mo. Black & Co., Edinburgh.

THIS is a decided improvement on the London Pharmacopœia. Report gives the chief credit of the authorship to Dr. Christison. The choice is praiseworthy, because a work which treats of medicines must be very deficient if the author be ignorant of the science under which they are administered, as in the case of the Pharmacopœia of London. Some critics of that work apologised for its defects on this score, and conceived that the reputed *collaborateur* had only tendered his advice in particular instances. They thought that they were doing that gentleman a favour. On the contrary, he testily rebutted the charge. "Alone I did it!"

The new Pharmacopœia brings us nearer to that era in medicine, when physicians shall no longer pride themselves, like the savage priests of Tahiti, in keeping all medical knowledge to themselves, by inditing their prescriptions in a doggrel dead language; but they shall preserve their acquaintance with chemistry in the language in which they have been taught that science, and shall no longer incur the risk of destroying their patients, by writing in terms which the druggist only interprets by the aid of a dictionary.

The Edinburgh Pharmacopœia comes before the public in an English dress; the old women in Pall Mall will be shocked at this innovation. That the English public should be allowed to understand the language of the work in which the medicines of which they must partake are described, is a novelty which the College cannot tolerate. These days, however, are nearly ended, and with the last surviving of the sisters must terminate that system of concealment which is the bane of science. If Dr. Christison had extended the improvement still further, he would have conferred yet greater service on medicine. He should have written the names of the articles of the Pharmacopœia in English, as well as the description of the processes for their preparation, instead (from his disinclination to upset the practice of writing Latin prescriptions) of merely appending the English names. How absurd, for instance, to term *charcoal* "carbo ligni!" An argument has been offered in favour of a Latin Pharmacopœia, which, at first sight, seems plausible, but is altogether shallow on examination. Latin, it is said, "is understood throughout the civilised world;" but the English Pharmacopœia is made for England and its dependencies alone, and ought, therefore, to be written in the language of the country for which it is intended. With a similar argument the religious despots and inquisitors of a past age enforced a Latin Litany, now consigned to the cloisters of oblivion.

We shall divide a few observations on the work before us into those upon *nomenclature*, and those upon the *processes*.

Nomenclature.—The necessity of employing a physician who is deeply versed in chemistry for the production of a Pharmacopœia, is rendered obvious by a comparison of the nomenclature of the London and Edinburgh works. A prescribing physician is acquainted practically with the difficulties that attend the employment of new names, and the continued changes which must necessarily ensue if the theoretical terms appended to substances, with the view of explaining the progress of the science, are to be continually introduced. How inconvenient would it be if a man's house must always change with any increase or diminution of his weight or bulk.

In the London Pharmacopœia the ammoniacal salt of commerce is termed *sesquicarbonate*. Now, the experiments of Dalton and Scanlan lead to the inference that it is a mixture of carbonate and bicarbonate, which may be separated from each other by the action of water; the old name, therefore, of *carbonate of ammonia* was preferable to the innovation, and is used in the Edinburgh work.

The golden sulphuret of antimony, whose composition, as a mixture or compound, is not determined, is styled, in the London work, *oxysulphuretum*, a term which has no meaning whatever, and may lead the pupil to entertain a false theory of the substance. In the Edinburgh Pharmacopœia the primitive term is retained, as above.

Tartar emetic is known to the most learned and the most vulgar, equally, under this designation. No chemist has hitherto explained the actual mode in which the elements of this compound are united, and, therefore, the term *tartarised antimony*, employed in the Edinburgh work, is greatly preferable to that of the *potash tartrate of antimony*, although the latter term may be correctly employed in a scientific treatise.

White arsenic is another poisonous and useful matter, which acts the part equally of an oxide and of an acid. In London it is termed *arsenious* acid; but we think that, for officinal purposes, the common name by which every one knows it is greatly to be preferred.

In the London work we find Fowler's *arsenial solution* called *liquor arsenitis potassæ*, thus leading to the inference that this preparation is merely a solution of the *arsenite of potash*, whereas it contains some *arsenite* of *potash* and some *arsenious* acid, or white arsenic, jumbled up together, in water. The Edinburgh Pharmacopœia very properly retains the applicable term of *solutio arsenicalis*, and thus avoids the danger which must occur if the nomenclature of the London Pharmacopœia is to be considered as correct.

In a former review we endeavoured to show that the primitive name was the most correct, because it was not influenced by any change in theory. The term *Glauber salt* is superior to that of *sulphate of soda*, because probability seems to be in favour of the idea that this compound is not a combination of sulphuric acid and soda, but of sulphatoxygen and sodium. Hence the absurdity of changing the nomenclature to suit every change of idea.

Oil of vitriol is used to denote the sulphuric acid of commerce, which consists of one atom acid and one atom water, and is a fluid, while sulphuric acid is a solid body; it would, therefore, be as improper to term the common oil of vitriol *sulphuric acid*, as to call sulphate of lime *sulphuric acid*, because both substances consist of sulphuric acid united to a base, that base being in the one case lime and in the other water.

In the London Pharmacopœia the red oxide of mercury is termed *binoxide*. Had it been called *deutoxide* it might have passed muster, but as the first designation refers to the number of atoms of oxygen which the compound contains, the nomenclature is highly objectionable; since, according to the best authorities, the substance is composed of 1 atom mercury + 1 atom oxygen. The Edinburgh work has, therefore, judiciously retained the unobjectionable designation of *red oxide of mercury*, that description being strictly applicable to the preparation.

In the London work the impure carbonate of zinc, instead of having its composition pointed out by its title, is, in order we suppose to form the exception, called by the primitive term of *calamina*. And in the Edinburgh, where, under its common designation, it correctly appears, the descriptive appellative *preparata* is added, indicating its preparation, or levigation. In short, the London doggrel recals continually

to the reader's mind Butler's description of the—

"Babylonish dialect
Of patch'd and pyebald languages,
Of English cut on Greek and Latin,
Like fustian heretofore on satin."

EDINBURGH.

Antimonii sulphuretum.
.... aureum.
Antimonium tartarisatum.
Arsenicum album.
Bismuthum album.
Calamina preparata.
Calomelas.
Cuprum ammoniatum.
Ferrum tartarisatum.
Hydrargyri oxydum-rubrum.
Hydrargyri precip. album.
Lithargyrum.
Pulvis antimonialis.
Sublimatus corrosivus.
Liquor arsenicalis.

Such are some of the alterations in the London Pharmacopœia, which are most unquestionably better given in the Edinburgh work. Next week we shall notice the most important of the novelties in the processes.

The Discovery of the Vital Principle, or Physiology of Man. Starling, Leicester-square. pp. 566, 8vo.

A Popular Treatise on the Kidney, its hitherto Unknown Functions and Diseases, in connection with the Circulating Animal Oils, &c. By GEORGE CORFE. Baisler, London. pp. 304, 8vo.

THESE works, altogether so dissimilar in their titles and the subjects of which they treat, have, nevertheless, in many respects, such a mutual similarity, that they may with propriety be classed and reviewed together. They both profess to treat of most important discoveries relating to the physiology of man; they are both written in a peculiar style, and both end in announcing the discovery of the vital principle; one author, however, considering that this subtle agent is entirely dependent upon dew, that being, as he considers, "the *primary* cause of animal and vegetable organisation;" whilst the other has made the first principle of life to be dependent upon the—fat!

The amount of "information," then, conveyed in these volumes amounts simply to these discoveries; in what way, however, these original thinkers prove their positions we are at a loss to discover, for if ever there were exemplifications of the truth of the remark, that

The following table presents a comparative view of some unnecessary changes in the London Pharmacopœia:—

LONDON.

Antimonii sesquisulphuretem.
.... oxysulphuretum.
.... potassio-tartras.
Acidum arseniosum.
Bismuthi trisnitras.
Calamina.
Hydrargyri chloridum.
Cupri ammonio-sulphas.
Ferri potassio tartras.
Hydrargyri binoxydum.
.... ammonio chloridum.
Plumbi oxydum.
Pulvis antimonii compositus.
Hydrargyri bichloridum.
Liquor potassæ arsenitis.

"True, no meaning puzzles more than wit,"

they are to be found in the volumes before us.

We cannot do the authors better service than by quoting a few of their more striking observations. Thus, in the "Vital Principle," we find a new theory of the cause of

COMPRESSION OF THE BRAIN.

"Compression of the brain is not caused, as is generally supposed, by too copious a circulation of the blood, but by air ascending into the cranium, and extending the bone or skull until the very sinuses are opened; if evaporation does not take place in an equal proportion to the air absorbed in the cranium, compression of the brain is the consequence; an obstruction of the circulation between the arteries and veins succeeds, whence nervous irritation must necessarily ensue. The brain may be compressed until its essence evaporates, and the charcoal only remains. The uterus of the perfect life is an elastic membrane or web, which is extended throughout every living particle of man. When the brain contracts the uterus expands, and the plastic diamond loses its elastic form. Thus man dies, and his machine is resolved into dust; but the triple elementary seed remains unchanged: mind being the unity of parts of real substance, cannot be annihilated; for, whether animal matter be in the solid, fluid, or aeriform state, it is still the same, and will reproduce in another state of existence, according to the degree of condensation exercised upon it."

WHAT IS MAN?

"The elastic web that incloses every particle of matter belonging to the machine—Man, is pure diamond in a solid state: each particle being cemented together by diamond in its fluid state, in the same manner that bricks are cemented together by mortar and plaster, until the dwelling or machine is completely formed. Death is the separation

of these particles, owing to the dissolution of the elastic properties of the fluid which cemented them together; and as this fluid loses its elasticity or heat, will the mind of man or animal become collapsed, until death finally takes place, when every particle of these solid diamond atoms will gravitate to their receptacle, the uterus. The germ of all animal seed, being pure crystal, can never be dissolved away: but when decomposition of the living membrane takes place, by the principle of gravitation, all and every particle composing this membrane is attracted by the veins, and through them falls to the uterus, the general reservoir for decomposed matter. (It is not unusual for the uterus, when its elastic power is gone, to beat and pulsate like the pendulum of a clock.) In this state man retains his mind or intellectual faculties until the last moment of his existence."

ORIGINAL IDEAS.

"The volcanic process which occasioned the deluge is still kept up in the two venous and arterial cavities of the heart. Into these two internal cavities the waters retreated after the flood, and hence we have the Atlantic and Pacific Oceans."

"The human mind, by this time, will comprehend, from the perusal of the preceding pages, how a remnant of the virtuous portion of mankind may be saved alive in the last day by the very powerful invention of balloons. Ere the awful termination of the present abode of man, let us hope we may see the surrounding atmosphere spotted and illumined by moving vessels of every description, as we now behold them on the waters. Here, then, is excitement for genius and talent to unite in every possible way: not a moment should be lost in devising the means of preservation from the impending danger."

It will be perceived by these extracts that the author of the "Vital Principle," is a poet as well as a philosopher, but so also is the Apothecary to the Middlesex Hospital. His imagination, however, has taken rather a different turn; he appears to have written his book for no other purpose than to show with what dexterity he can find biblical similes for every point in anatomy, physiology, or disease, of which he treats; and for the attainment of this purpose it appears that his text-book in the dissecting-room, the dead-house, and the wards of the hospital, has been the bible. However out of place the similes to which we allude may be, the ingenuity displayed in their adaptation will not be disputed: the following extract is a fair specimen of the poetical powers of the author:—

"The ALMIGHTY CREATOR of man has, in my mind, bestowed great honour on that inward part, the kidney, in selecting it to be cut out of brutes, and offered up on His own holy altar with the kindred fat and caul, or midriff, as a typical sacrifice. Most important must that organ be in animal life, which is so PICKED OUT BY THE DIVINE MAKER, who wound its every thread from His own finger, and spread out His own rich embroidery over every bone, with all its undulations, and convexities, of sinew, muscle, nerve, and vessel!

"To my imagination, the kidneys, or I shall say the kidney, sits a sovereign in animal life, in the very centre of its kindred body. With one arm, as it were, she receives the oil, with the other she rejects its refuse. One power she attracts with, and with the other propels. Eight seconds after an article is taken by her from the mouth of the body, whether masticated by the teeth, or simply swallowed, or whether received into the body as an immaterial principle, as the effluvia of turpentine,* violets, coffee, &c., it is lodged in its invisible quintessence in her bosom, and is from thence cast forth, according to the pure and sanctified language of Holy Writ, that "Whatsoever entereth in at the mouth, goeth into the belly, and is cast out into the draught," these defile not a man; but the pourings out of a corrupt heart are the things which defile a man.

"The kidney sits with her back against the reins, or loins, and hence she derives her strength; so in CHRIST all men have life, whether carnal or spiritual; "in Him we live, and move, and have our being." CHRIST is, indeed, the unknown GOD to some men, but to all is He the sustaining Power, by whom all things consist, and of whom all things, in heaven or in earth, are. The nature of the kidney is to be utterly incapable of generating the least atom of fat; yet is she imbedded or inthroned in fat, and so is moistened, enriched, and kept supple. Thus, as she derives her stability and power of performing her functions from her position, leaning against the reins, or loins, so she derives her moisture, not so much from the multitude of oily channels within herself, as from the gracious and copious insinuating anointings of the fine unctuous matter all around and about her. Have we not here some shadowings of the natural man? He has not by nature one atom of grace, yet that oil of rich mercy is copiously shed, inasmuch as he is loaded with benefits, and is moreover invited to come to CHRIST the LORD for salvation; nevertheless, by his

* Hay, turpentine, coffee, violets, &c., when presented to the nerves of smell, may be detected by their peculiar effluviæ in the urine in an incredibly short space of time, some seconds even.

fondly-loved sins is he withheld, and so rejects eternal life. Much more is the Christian enriched by, and embedded in, the rich unction and oil of GOD's grace.

"This oil of grace, by the wonderful and secret operation of GOD the HOLY GHOST, in the work of regeneration, is put by his Almighty hand into a fleshy tabernacle, a weak and carnal vessel, that the excellency and the power may be of GOD, and not of man. In like manner the kidney receives her oil and rich unction into a fleshy body, a space that is surrounded with corruptible flesh. Without this oil she would be fit for nothing in the economy; she would soon decay and wither, and then must follow disease, confusion, and death.

"This wonderful gland has seven main oil tubes, to convey this life-giving fluid into the bosom of the organ; of these, the central tube is the largest. I recognise in this marvellous conformation a striking similitude to the golden candlestick that was to be always lighted in the temple at Jerusalem. (Exod. xxv.) The type of the new man in Christ, or the light in the lantern and lamp, to the otherwise dark and benighted soul of the old man.

"Again; the Christian can look up to Him who is GOD in the eternal FATHER's nature, and man in His own nature, and with humble confidence exclaim, "I am crucified with CHRIST." — "They that are CHRIST's have crucified the flesh with the affections and lusts."—"The world is crucified unto me, and I unto the world; knowing this that our old man is crucified with Him, that the body of sin might be destroyed, that henceforth we should not serve sin." The wonderful organs which an Infinite Mind commanded to be laid upon His altar, have a power of crucifying, destroying, rendering inert, and casting away the useless, unprofitable principles, which are engendered in the system, and are carried into their bosoms.

"The world, the flesh, and the devil, are the tri-une enemies of the "new man;" doubtless, also, there are many enemies to the maintenance and progress of healthy structure, and organisation, in the "old man," which the kidneys have the power to eradicate and reject from the system. The old man must be crucified daily, as his antitype, these choice selections of the lamb, were sacrificed morning and evening. In this organ, set apart by the Creator for a daily sacrifice, type, and remembrance, of the sins of the old man, and his dependence on "the MAN," the CHRIST of GOD, there was a shadow of good things to come, and not the very image of the things, for CHRIST JESUS is the brightness of the FATHER's glory, and the express image of His person; as it is written, "who is the image of the invisible GOD, the first-born from the dead." But in those sacrifices there is a remembrance again made of sins every year, but now our Passover and our Sacrifice hath been once offered to bear the sins of many, and by that one offering hath for ever perfected them that are sanctified, so that there remains no more sacrifice for sin. Hence we have put away all these types and shadows, this blood-sprinkling and burning of offerings, because this MAN, after He had offered one sacrifice for sins, for ever sat down at the right hand of GOD."

The manner in which he introduces "the fat" to the reader will probably remind some of the cry of the fruit-dealers in Constantinople,—"In the name of the prophet—figs!"

"As we view these wonderful types which GOD ordered to be selected for His own altar and sacrifices, we must be struck with that remarkable one,—the fat. "All the fat that is upon the inwards;" the richest, the best, and the most valuable of man's estate, whilst on earth, are thus to be dedicated and given up to the LORD his GOD."

Had these volumes been published in Laputa they would there have been remarkably popular, as the philosophers of that justly-celebrated island could have fully appreciated their merits. The author of the "Vital Principle," indeed, we strongly suspect to be a native of Laputa, or at all events to have been educated in that country. We recommend him to return and settle there.

STATEMENT OF MR. MACKENZIE,

CANDIDATE FOR THE DEGREE OF

BACHELOR IN MEDICINE

IN THE

UNIVERSITY OF LONDON,

RESPECTING THE CONDUCT OF HIS EXAMINERS.

Memorial of FREDERICK WM. MACKENZIE.

To the Chancellor and Senate of the University of London.

MY LORDS AND GENTLEMEN,—

With very great respect I submit to you the following statement, and pray that it may be taken into your consideration at the same time with the Report of the Examiners for the degree of M.B.

I have submitted myself to the examinations for the degree of M.B., and I am informed that after the second examination I have been placed by the examiners in the second class. Before I proceed I wish to state most distinctly that I do not complain of the mode in which the examination was conducted, nor do I presume to question, in any way, the judgment of the examiners,

with respect to the place which they may have assigned me, in relation to the other candidates, in their several subjects of examination: but I have reason to believe, on the authority of certain of the examiners themselves, that in drawing the line between the first and second class the examiners were influenced by other considerations besides the proficiency of the candidates in the subjects of examination, and that if these alone had been regarded, I should have been placed in the first class. I will state the grounds of this belief as briefly as I can, and I humbly pray the Senate to inquire into the matter, and if they find that my belief is well founded, to revise the decision of the examiners.

As I had devoted myself for four years, with great zeal and diligence, to the study of my profession, subsequently to my arrival in London, and had gained four gold medals and one silver medal in the examinations of the classes of University College, I was very naturally disappointed at finding myself in the second class after the late examination; and, supposing it to be my own fault, I was anxious to know in what part of the examination I had failed, and I took the liberty of calling upon one of the examiners in order to inquire.

I saw Mr. Kiernan on the 25th of July, and, in reply to my inquiries, he informed me that I had done very well in my examination; on my further expressing a doubt that I had given satisfaction in forensic medicine, he told me that as far as he had learned I had done very well in that branch; and when I told him that Mr. Bacot had expressed himself most favourably to me on the subject of my paper on surgery, at the time of the *viva voce* examination, and had on that ground declined putting any questions to me at all, he added that Mr. Bacot had expressed a similar opinion at the meeting of examiners. Mr. Kiernan proceeded to tell me that I was mistaken in thinking it a disgrace to be placed in the second class; *and that if I knew the explanation of it I should not think so*, but that he did not feel himself at liberty to give me the explanation. He admitted that in his opinion the examiners had "seriously erred," and expressed a hope that the division of the classes might yet be altered; and in conclusion he wished me to call upon Drs. Tweedie and Billing.*

I saw Dr. Tweedie on the 26th of July, and he assured me that in medicine I had done very well; that he was perfectly satisfied with me in the whole of his examination; and that it was not on account of deficiency in his subject that I was not in the first class. He wished me to call on Dr. Roget.

I saw Dr. Roget on the same day, and he assured me that he was perfectly satisfied with me; and that, as far as his subject was concerned, he should have placed me in the first class without a doubt.

As I was thus assured by the examiners that I had done very well in four out of the five subjects of examination, and nothing was said of the fifth, midwifery, and as Mr. Kiernan had intimated that I was placed in the second class for some reason which reflected no disgrace upon me, I began to feel that there was something in the matter which required explanation; and I requested a gentleman, to whose friendship I am much indebted, and whose position justified him in interesting himself on my behalf, to make farther inquiries for me.

On the 26th of July my friend applied to Dr. Tweedie, one of the examiners, and, at an interview with him, received an explanation to the following effect, viz., that some candidates besides Mr. Taylor were entitled to be placed in the first class, as far as regarded the examinations actually gone through, and that I was one of those so circumstanced; but that he (the examiner) and Dr. Billing (a member of the Senate of the University and an examiner) had, with a view to test the candidates' proficiency in the Latin language, prepared an extract from Celsus, which, without the cognizance of the candidates, they were prevented from placing before them, in consequence of the interpretation of the regulations of the University given by the Registrar; that Dr. Tweedie and (as my friend understood) Dr. Billing submitted to the other examiners their opinion, that candidates, though qualified, according to the result of the examination to which they were required to submit, ought not without an examination on Latin to be placed on the first class. Dr. Tweedie assigned to my friend, as a reason for this, that objections, on the ground of a defective knowledge of Latin, might otherwise arise to the graduates of the University on offering themselves as candidates in another institution. The result was that the body of examiners determined that all candidates should, on the ground stated, be put into the second class, with the exception of Mr. Taylor, whom, on account of his pre-eminence, they could not feel justified to omit from the first class, although he had not been examined in Latin. Dr. Tweedie admitted that the candidates knew nothing whatever of the examiners' views concerning Latin; and that some of the candidates, of whom I was one, were (by being placed in the second class) "subjected to great injustice," which, as it was not yet too late, he would endeavour to remove.

* Mr. Kiernan has since stated to me, in making use of the words that "I had done very well in forensic medicine," he only wished to imply that it was not on the ground of deficiency on that subject that I had been put in the second class.

Next morning, at the desire of Dr. Tweedie, my friend met him and Dr. Roget at Dr. Tweedie's house.

On that occasion Dr. Roget stated that a mistake, in which the candidates had no share, had been made concerning a Latin examination; that some of the candidates besides Mr. Taylor were entitled to be ranked in the first class: Dr. Tweedie spoke to the same effect. Dr. Roget also remarked that no official report of the examination had yet been made, the announcement in the "Morning Chronicle" being unauthorised, and both gentlemen agreed that the admitted grievance would in all probability be remedied on their recommendation to their colleagues.

Dr. Roget, who was chairman to the Board of Examiners, has, since then, expressed his regret that the examiners have not been prevailed upon to relieve the candidates in question from the grievance which they are made to suffer, although it has arisen entirely from a mistake.

As the information which my friend received was given in answer to an express inquiry upon the subject he felt himself justified in communicating it to me after he learned that the examiners had come to a final decision; and fearing that without such information the senate might be prevented from arriving at a just decision in the matter, he has permitted me to state it here, and is prepared to authenticate it if required.

As I now know, on the authority of three of the examiners, that my name would not have been in the second class but for a circumstance wholly unconnected with the examination which I underwent, and the estimate formed of my professional acquirements, I respectfully request your attention to the effect of this determination on my present position.

First, I am subjected to what I now feel to be an unmerited degradation.

Secondly, I am prevented from seeking for honours, which I had prepared myself to contend for on certain subjects.

Lastly, I am subjected to the expense and delay of one whole year's *additional* study at a hospital or the delay of "two years of practice" before I can present myself for the degree of Doctor (see regulations 470), and by the expense and delay this occasioned me my future plans and prospects are entirely deranged.

I remain, my Lords and Gentlemen, with very great respect, your humble servant,

F. W. MACKENZIE.

London, July 31, 1839.

*** The following letter was received by Mr. MACKENZIE, on the 1st instant, from the Registrar of the University:—

"Sir:—I have been instructed by the Senate of the University of London to inform you that you are in error with regard to the grounds of your petition, as you were not placed in the second division in consequence of the omission of the Latin subject of examination.—I have the honour to be, Sir, your very obedient servant,

"R. W. ROTHMAN, Registrar.

"University of London, Aug. 1, 1839."

"To F. W. Mackenzie, Esq."

The Letter of Mr. ROTHMAN does not close the proceedings in this extraordinary history. In another week or two we shall be prepared to add some information to the statements of Mr. MACKENZIE, which will occasion no little surprise, even to those who are already familiar with the abuses which are constantly liable to arise out of institutions and systems that are founded on vicious principles, and rendered irresponsible, in their mode of government and operation, to wholesome public control.

RECENT APPOINTMENTS IN GLASGOW UNIVERSITY.

To the Editor of THE LANCET.

SIR:—You surely are not aware of the recent appointments to two new medical chairs in the University of Glasgow, viz., those of Forensic Medicine and the Theory of Medicine, or you would certainly, ere this time, have noticed this continuance of the systematic jobbing which has so long distinguished our University, and is at present exciting much attention in the medical world of Glasgow.

The Senate of the University, some years ago, appointed a lectureship of forensic medicine, designed to be filled by a son of one of the jobbers, a young man fresh from the school-benches; but Dr. Corkindale, the medical inspector of Glasgow, having started as a candidate, on other merits, the jobbers dared not carry their scheme to maturity, but deferred further proceedings. The Doctor being since far advanced in years gave up all thoughts of the lectureship, and the Senate determined to complete the job this summer, by appointing the son of the Professor. However, Dr. Robert Canon, well known here to be, in these matters, as wily as a serpent, started as a candidate, but finding almost all the Professors pledged to support the Professor's son, exerted his political influence with the Home Secretary,—got the lectureship converted into a professorship, thereby wresting the patronage out of the hands of the Professors, and himself made Professor of Forensic Medicine.

The job, I am sorry to say, did not here end; Dr. Canon was opposed by Dr. Andrew Buchanan, a man also of powerful political Whig influence (his brother Walter having seconded the nomination of James Oswald, at each election for M.P., at the hustings), and to be free of his influence, he contrived to get the lectureship of the theory of medicine made into a professorship—had Dr. *Andrew* Buchanan appointed Professor of the Theory of Medicine, and ejected Dr. Rainy, who had filled the situation for seven years with unusual *eclat*. Who ever heard of proceedings more discreditable to a national seat of learning? We have two men appointed to fill two most important chairs in our University, no one ever before having known that such appointments were to take place; and we have also a celebrated lecturer turned out of his class-room for not the slightest shadow of a reason, excepting that it should be filled by the *liberal* Dr. Andrew Buchanan. I am, Sir, your obedient servant,

ALPHA.

Glasgow, July 29, 1839.

*** We care not what are the politics of any of these parties; both the creation of such appointments, and the mode of electing to them, is altogether corrupt, and highly injurious to the character of our medical institutions, and to the best interests of medical students. The system will not last much longer.—ED. L.

THE NEW CHAIRS AT GLASGOW.

To the Editor of THE LANCET.

SIR:—In your last number I observe a doleful ditty from a worthy "ALUMNUS" of Glasgow, in which he complains of "a measure of great injustice having just been accomplished in that University." Where lies the injustice we ask? Dr. Badham, when appointed to the chair of physic (in an unlucky hour for the interests of Glasgow College) by the Government, was led to understand that the Crown retained the privilege of instituting a professorship of the theory of medicine should the recommendation of the Commissioners appointed to examine the state of the University be carried into effect. Dr. Badham, however, considered that he was capable of delivering two courses of lectures on two distinct subjects, and actually humbugged the students and the professors by reading a few hasty disquisitions on what *he* called *theory*. But he soon found, as your correspondent observes, that "the duties of his chair were too many for him." Mark the sequel: "In consequence he invited Dr. Harry Rainey to become lecturer on the theory of medicine, *reserving to himself* the practice," and *one third of the fees* paid for the new course of lectures; that is to say, he constituted himself patron of the chair of the theory of medicine, and sold it to Dr. Rainey *for one third* of the fees. Aye, truly, "a most nefarious plot!" What, now, is the complaint of Dr. R.'s friends? That, after having enjoyed his bargain for several years, Government have followed up the recommendation of the University Commissioners, by appointing a professor to the chair of the "theory of medicine;" and have chosen as the individual to fill that office not the man who expected to overturn the patronage by purchase—not one of the reputed priest-physicians of Glasgow—not one who, courting the patronage and applause of fanatics, would stifle to the uttermost the very name of reform, which is so much wanted in the College—but Dr. Andrew Buchanan, formerly one of the editors of that excellent periodical the *Glasgow Medical Journal*, whose writings and acute reasonings are, perhaps, better appreciated on the continent than in this country (I particularly allude to his papers in answer to the evidence of Dr. Thomson, of Edinburgh, in a case of gun-shot wound, the serous membranes, and his experiments with iodide of starch, &c.), whose talents are not surpassed by any member of the faculty in the city, and whose liberal opinions cannot fail to assist in effecting an important reform in the infamous systems at present practised in the University. Government has acted admirably on the present occasion, and their decisive conduct will, I trust, upset the venal method of obtaining appointments which has been so much in fashion of late. Witness the chair of mathematics and the attempted plot in the moral philosophy. I may add that the appointment of Dr. Cowan does infinite honour to the patrons. I am, Sir, your obedient servant,

D.

Aug. 5, 1839.

*** The writer has supplied his name and address.—ED. L.

OPERATIONS BY MR. T. LYON.

To the Editor of THE LANCET.

SIR:—May I beg the favour of your inserting the present communication in your valuable Journal at your earliest convenience.

In some of the articles which have lately been published in your Journal respecting the unfortunate case of the late Joseph Hall, it has been assumed that the surgeon who injected the Eustachian tubes had not sufficient anatomical knowledge and skill to perform it, and thence a chain of reasoning has been attempted to account for the death. To show the fallacy of this mode of argument, I shall refer to two operations of

great magnitude performed by me, and recorded in the "Medical Gazette" of the 12th Oct., 1833, and 22nd Feb., 1834. These were cases of tumours situated directly upon, and in contact with, the common carotid arteries, both of which had a successful termination. One of these tumours was considered by the celebrated surgeon, Mr. Liston, of sufficient interest to be placed in his collection of morbid anatomy; the other is in my own collection. The operation of injecting the Eustachian tubes is considered by aurists of eminence as one of the minor operations of surgery. Mr. Pilcher, in his prize essay on Diseases of the Ears, states, at p. 308, that "a little experience renders the introduction of the catheter through the nose one of the *easiest* of the *minor* operations in surgery." I shall leave it to the profession to judge whether a surgeon capable of performing the operations above alluded to was not, also, capable of performing one of the easiest of the minor operations in surgery. I have the honour to be, Sir, your obedient servant,

T. Lyon, M.R.C.S.L.

25, Montague-street, Russell-square,
Aug. 5, 1839.

JAUNDICE, FROM SPASMODIC ACTION OF THE DUODENUM.

To the Editor of The Lancet.

Sir:—You will oblige me by giving the following case a place in your pages.—Your humble servant,

George Lucas, Surgeon.

Ilkeaton, Derbyshire, Aug. 2, 1839.

Mr. —, æt. 64, of temperate habits, was seized in the night with violent abdominal pain, of a spasmodic nature, confined chiefly to the region of the umbilicus. Castor-oil was administered by his family with the view of unloading his bowels, which were constipated, but was not retained. I found him with a countenance expressive of much suffering, bending forwards, and exerting pressure upon the abdomen. Pulse natural; tongue white; conjunctiva tinged with bile; no vomiting since the rejection of the castor-oil, which was mixed with portions of undigested food.—Fomentations were ordered to the abdomen, and the following draught, to be taken immediately, which was to be encouraged to operate, by the use of an injection every hour:—

Powdered rhubarb, twenty-five grains;
Jalap, ten grains;
Aromatic powder, three grains;
Peppermint-water, six drachms;
Infusion of senna, six drachms.

Draught retained; second enema followed by three copious discharges from the bowels, with instant relief to the pain. On the day following he continued free from pain; urine scanty, and highly coloured, staining his linen; tongue white; conjunctiva and general appearance jaundiced; pulse not affected; slight pain on pressure over the duodenum.—Restrictions were now given as to diet, and the following medicine was ordered:—

Comp. rhubarb pill, half a drachm;
Blue pill, half a drachm; mix, and divide into twelve pills; two every night, and half an ounce of castor oil, in a little brandy, in the morning.

Under this treatment the stools, which, at first, were deficient in, soon became impregnated with, bile; the urine changed its colour, and increased in quantity; and all the symptoms of jaundice rapidly disappeared.—To have an ounce of infusion of columba containing carbonate of soda, thrice daily, and to attend strictly to diet. The next report says that the strength and appetite greatly improved; he considers himself well.

In a few days I was again summoned to attend him, and found him labouring under the same symptoms as at first. Similar means were adopted; but as the bowels were very obstinate, two aperient draughts, assisted by several enemata, were necessary in order to relax them. The relapse was, doubtless, owing to his partaking of peas at dinner, as the symptoms manifested themselves not many hours after, and gradually increased in severity, whilst the bowels remained unmoved; the pain continued, and I distinctly witnessed the conjunctival tinge become deeper every hour. By the use of the pills already mentioned, at night, and the infusion of senna, with tartarised soda, in the morning, the bile flowed into the proper channel, and, by a strict adherence to diet and regimen, his health is now re-established.

This case appears to me to afford an illustration of spasmodic action of the duodenum giving rise to jaundice, by obstructing the flow of bile through the ductus communis coledochus. That the pain resulted from spasmodic action is evident from its character, and the instantaneous relief which followed the use of aperient medicines. That the jaundice arose from the spasmodic action it is also fair to conclude, from the circumstance of the eyes becoming so deeply tinged with bile immediately after the commencement of the pain, and gradually losing that colour upon its cessation from free alvine evacuations.

CHANGES IN THE NEW PHARMACOPŒIA.

To the Editor of THE LANCET.

SIR:—I have been for a long time a subscriber and an admirer of your Journal; and since the publication of the new Pharmacopœia I have, as a dispensing chemist, been interested, and sometimes amused, at the remarks that have from time to time appeared in the way of comment upon it. For my own part I have been disposed to look with more patience, if not with greater confidence than some of your correspondents have done, on the worthy clique under whose joint paternity and fostering care it has been ushered into the world; but whilst taking credit to myself for more than common forbearance, I am curious to understand some parts of their proceedings, particularly in the new nomenclature. The exceptions generally taken have had reference more to the modern terms in chemistry than refinements in pharmacy, and hence a species of caprice, which evidently has been allowed to run wild in the alteration of some names, has passed with little or no notice having been taken of it, there being no law, or rule, or propriety, so far as I can divine, for the changes. But before complaining I ought to ask you, Sir, or some of your readers, more enlightened than myself, to explain the origin and object of the following changes, viz.:—

Former Names.	*New Names.*
Linim. Hydrargyri.	Linim. Hydrarg. Composit.
Linim. Saponis Composit.	Linim. Saponis.
Tinct. Sennæ.	Tinct. Sennæ Composit.
Emp. Picis Composit.	Empl. Picis.

There is no particular alteration in the mode of making these articles; they are all compounds, and had they all been thus designated, it would have appeared reasonable and intelligible; but as it is, they by their juxta-position seem to ridicule one another, and inspire sentiments more of derision than veneration. Sp. camph. is now called tinct. camph.—a name, I think, not more befitting than the former. I am also puzzled to find out why tinct. cardam. co. is robbed of a portion of its cochineal, or why infus. and tinct. digitalis should both be reduced in strength, so that, at the present juncture, the two last most important remedies, by different prescribers are differently estimated, and thus perplex and confuse the dispenser of medicines most vexatiously. Into a similar labyrinth he is often led by the alteration of the names of the carbonated alkalies. The terms sodæ carbon. and potassæ carbon. mean by some physicians one thing, and by others another, so that the chemist, unless gifted with some precociousness, or possessing some mode of judging of the chemical genius of the prescriber, must often be at a loss to know what to use, but still this alteration is based on a principle, and its difficulty must be met by the united care of physician and dispenser. The license given by two modes of making distilled waters produces totally different results, and is calculated, when a medicine is compounded at more than one house, by its obvious dissimilarity, to produce distrust in the mind of the patient, and undue opprobrium on respective chemists, as it very naturally gives rise to a question of the comparative merits of, perhaps, competitors for public confidence.

I have several times, too, been unable to judge when a pint (0j) of anything has been ordered, whether 16 oz. or 20 oz. has been meant. The alteration of this measure is attended with so much inconvenience and annoyance, that I wonder why, as we have weights not in common use, we might not also have continued the 16 oz. pint.

I might venture on other topics, but fearing I have been already too lengthy, I subscribe myself, your obedient servant,

J. B.

TO CORRESPONDENTS.

A Subscriber.—We never before heard of such offices as "Surgeon for Life," and "Physician for Life." The creators must be very stupid people to give such names to officers whom they can, undebarred by any parliamentary law, at any time, remove as easily as they have appointed. There is no legal virtue in the word "life," although the trustees in question may be dishonourably departing from the terms of a verbal agreement.

The "hints" of *A Magistrate* and the letters of *Mediculus*, *Senex*, *Machaon*, and *Investigator*, have been received.

Provocator will do more good by proving to Mr. L., personally, or by written argument, privately communicated, that his opinion of the alleged "fable" was erroneous, than by giving publicity to his present letter, which is merely a denunciation of Mr. L. for holding, and, perhaps incautiously, expressing a particular belief.

We shall next week give the medical arguments drawn up by *Dr. Lynch*, of Newcastle, for the use of the legal advisers of the crown, in the prosecution of Bolam for the murder of Mr. Millie.